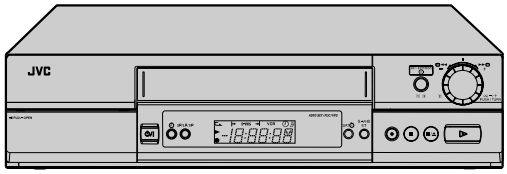
JVC

SERVICE MANUAL

VIDEO CASSETTE RECORDER

HR-S7960Ex, HR-S7965EF, HR-S7965EK



Hi-Fi S-VHS 625
Super VHS ET
SHOWVIEW® DELUXE

Regarding service information other than these sections, refer to the service manual No. 82957 (HR-S8960EX). Also, be sure to note important safety precautions provided in the service manual.

SPECIFICATIONS *(The specifications shown pertain specifically to the model HR-S7960EX.)*

GENERAL

Power requirement : AC 220 V – 240 V~, 50 Hz/60 Hz
Power consumption
  Power on : 18 W
  Power off : 3.3 W
Temperature
  Operating : 5°C to 40°C
  Storage : –20°C to 60°C
Operating position : Horizontal only
Dimensions (WxHxD)
  : 400 mm x 94 mm x 270 mm
Weight : 3.3 kg
Format : S-VHS/VHS PAL standard
Maximum recording time
  (SP) : 240 min. with E-240 video cassette
  (LP) : 480 min. with E-240 video cassette
  (EP) : 720 min. with E-240 video cassette

VIDEO/AUDIO

Signal system : PAL-type colour signal and CCIR monochrome signal, 625 lines 50 fields
Recording system : DA4 (Double Azimuth) head helical scan system
Signal-to-noise ratio : 45 dB
Horizontal resolution
  (SP/LP) : 250 lines (VHS) 400 lines (S-VHS)
  (EP) : 220 lines (VHS) 350 lines (S-VHS)
Frequency range : 70 Hz to 10,000 Hz (Normal audio) 20 Hz to 20,000 Hz (Hi-Fi audio)
Input/Output : 21-pin SCART connectors: IN/OUT x 1, IN/DECODER x 1
RCA connectors: VIDEO IN x 1, AUDIO IN x 1, AUDIO OUT x 1
S-Video connector: IN x 1, OUT x 1

TUNER/TIMER

TV channel storage capacity
  : 99 positions (+AUX position)
Tuning system : Frequency synthesized tuner
Channel coverage : VHF 47 MHz – 89 MHz/ 104 MHz – 300 MHz/ 302 MHz – 470 MHz
UHF 470 MHz – 862 MHz
Aerial output : UHF channels 22 – 69 (Adjustable)
Memory backup time
  : Approx. 10 min.

ACCESSORIES

Provided accessories
  : RF cable, Infrared remote control unit, "R6" battery x 2

Specifications shown are for SP mode unless otherwise specified.
E.& O.E. Design and specifications subject to change without notice.

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No.82975
2003/07

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DIFFERENT LIST

DIFFERENT TABLE OF FEATURE

The following table indicate main different points between models HR-S8960EX, HR-S7960EX, HR-S7965EF and HR-S7965EK.

ITEM \ MODEL	HR-S8960EX	HR-S7960EX	HR-S7965EF	HR-S7965EK
POWER PLUG	CEE(CLASSII)	←	←	BS(CLASSII)
JOG/SHUTTLE DIAL ON DECK	ADV. JOG with SPUTTERING	ADVANCED JOG	ADV. JOG with SPUTTERING	ADVANCED JOG
WINDOW COLOR	HS&SMOKE GRAY	PAINT&SMOKE GRAY	HS&SMOKE GRAY	PAINT&SMOKE GRAY
SATELLITTE CONTROLLER	PROVIDED	OPTIONAL	PROVIDED	←
SCART CABLE	OPTIONAL	←	PROVIDED	OPTIONAL
FLYING ERASE HEAD	USED	NOT USED	←	←
RE-TAKE	USED	NOT USED	←	←
ASSEMBLE EDIT	Z.F.E.	A.F.E.	←	←.
INSERT	USED	NOT USED	←	←
AUDIO DUBBING	USED	NOT USED	←	←
VIDEO SYSTEM : MESECAM	USED(MANUAL)	←	USED(PLAYBACK)	NOT USED
VIDEO SYSTEM : SECAM	NOT USED	←	USED	NOT USED
FRONT IN TERMINAL	GOLD	SILVER	←	←
L-2 INPUT DECODER	USED	←	←	NOT USED
REMOTE PAUSE TERMINAL	USED	NOT USED	←	←
BROADCASTING STANDARD	B/G,D/K	B/G,D/K	L,L',B/G	I
STEREO DECODER	NICAM/A2	←	NICAM(L,B/G)/A2(B/G)	NICAM
RF OUT	USED	←	NOT USED	USED
VCR PLUS+	SHOWVIEW DELUXE	←	←	VIDEOPLUS+ DELUXE
VPS	USED	←	NOT USED	←
OSD LANGUAGE	13 LANGUAGES	←	FRENCH	ENGLISH

Notes: Mark ← is same as left.

SECTION 3
ADJUSTMENT

3.1 Electrical adjustment

3.1.1 PAL/SECAM converter circuit [EF MODEL]

Note:

- ***Unless otherwise specified in this P/S Converter circuit adjustments, all measuring points and adjustment parts are located on the S-P Converter board.***

3.1.1.1 Colour difference level

Signal	(A1)	• Color (colour) bar signal [SECAM]
Mode	(B)	• EE
Equipment	(C)	• Oscilloscope
Measuring point	(D)	• CN1601 Pin 7
Adjustment part	(F1) (F2)	• VR1602 (B-Y ADJ) • VR1601 (R-Y ADJ)
Specified value	(G1) (G2)	• 460 ± 20 mVp-p (B-Y) • 620 ± 20 mVp-p (R-Y)

(1) Observe the C (converted colour) waveform at the measuring point (D).
(2) Adjust the adjustment part (F1) so that the higher level of the Yellow and Blue of the C waveform becomes the specified value (G1).
(3) Adjust the adjustment part (F2) so that the higher level of the Green and Magenta of the C waveform becomes the specified value (G2).

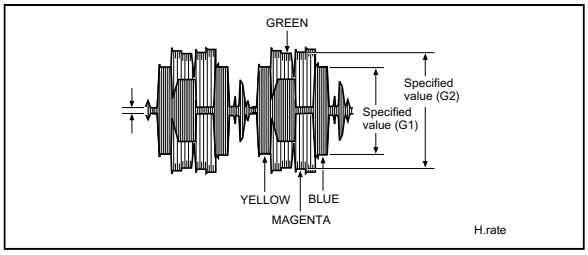

Fig. 3-1-1-1a Colour difference level

3.1.1.2 SECAM burst position

Signal	(A1) (A2)	• Ext. input • Color (colour) bar signal [SECAM]
Mode	(B)	• EE
Equipment	(C)	• Oscilloscope
Measuring point	(D1) (D2)	• CN1601 Pin 7 • CN1601 Pin 3
Adjustment part	(F)	• VR1603
Specified value	(G)	• Tr = 5.6 ± 0.1 µsec

(1) Observe the waveforms appeared at the measuring points (D1) and (D2).
(2) Adjust the adjustment part (F) so that the waveforms timing width between the H-SYNC and the colour burst signal becomes the specified value (G).

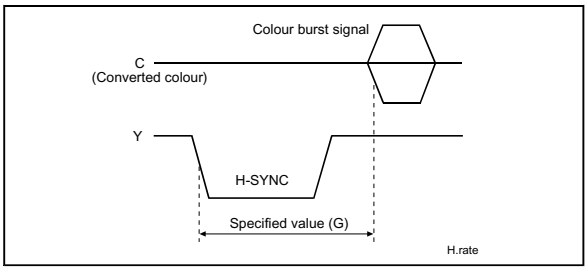

Fig. 3-1-1-2a SECAM burst position

[redacted]

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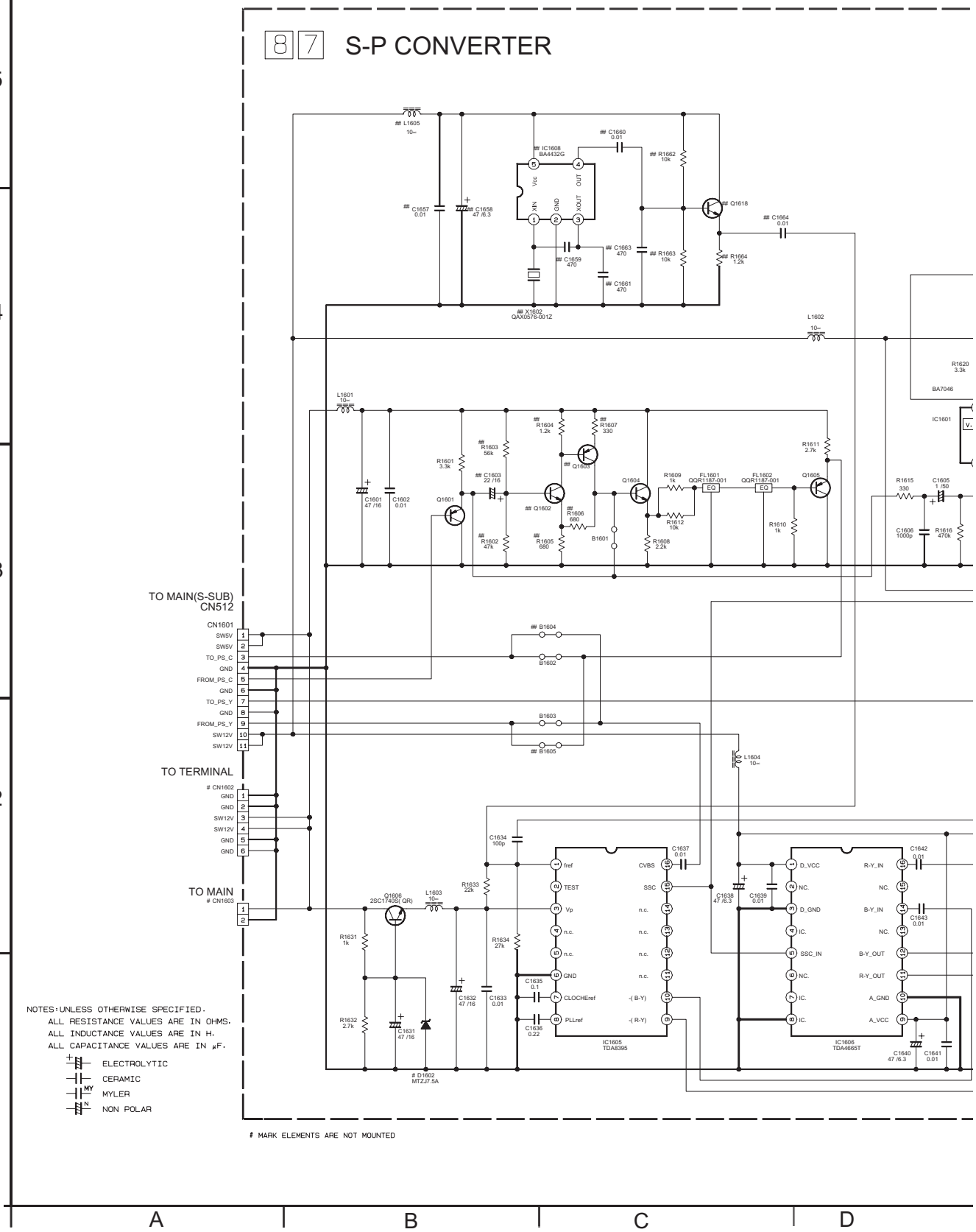
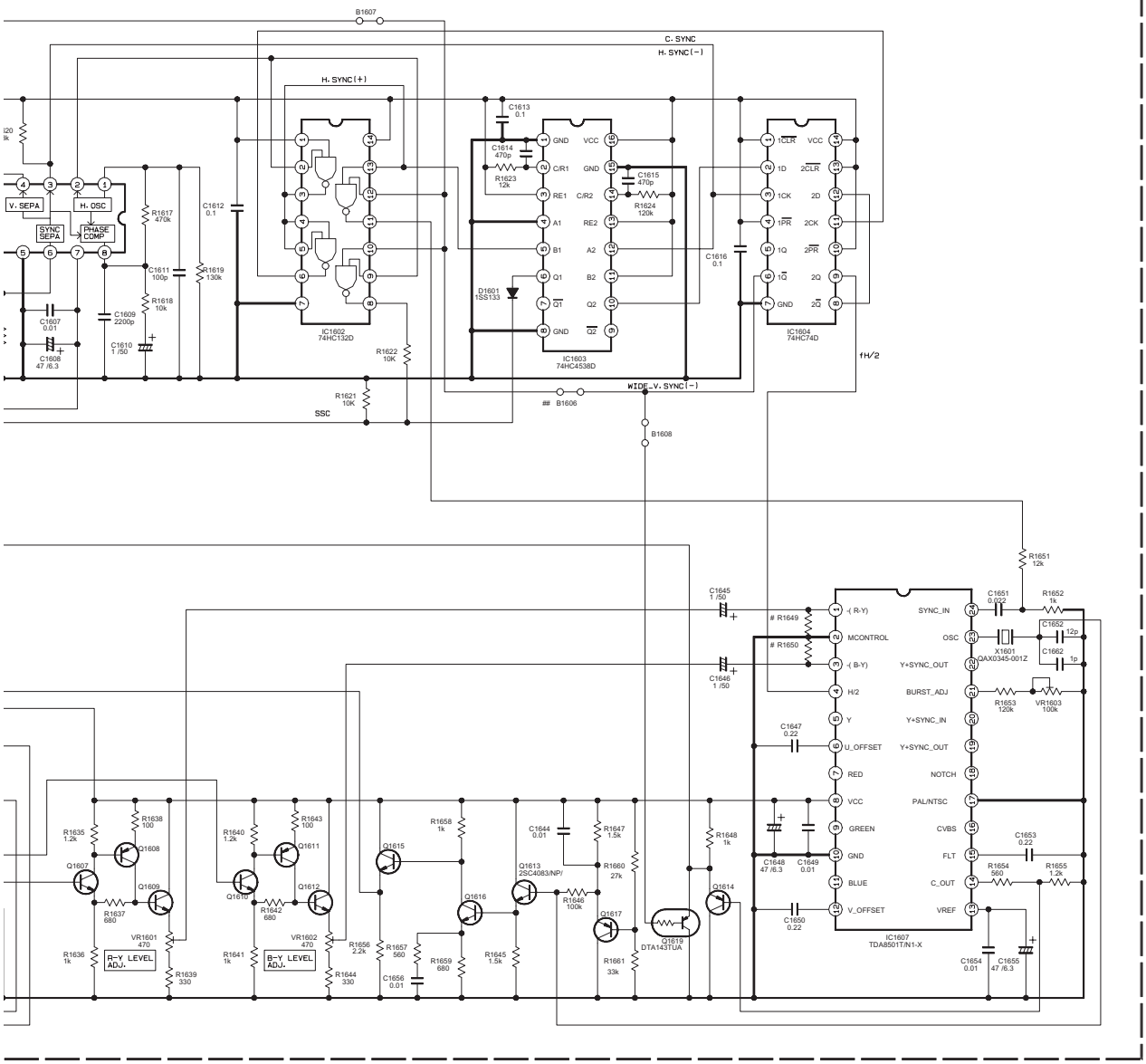
0307 VP

SECTION 4
CHARTS AND DIAGRAMS

4.1 S-P CONVERTER SCHEMATIC DIAGRAM [EF MODEL]

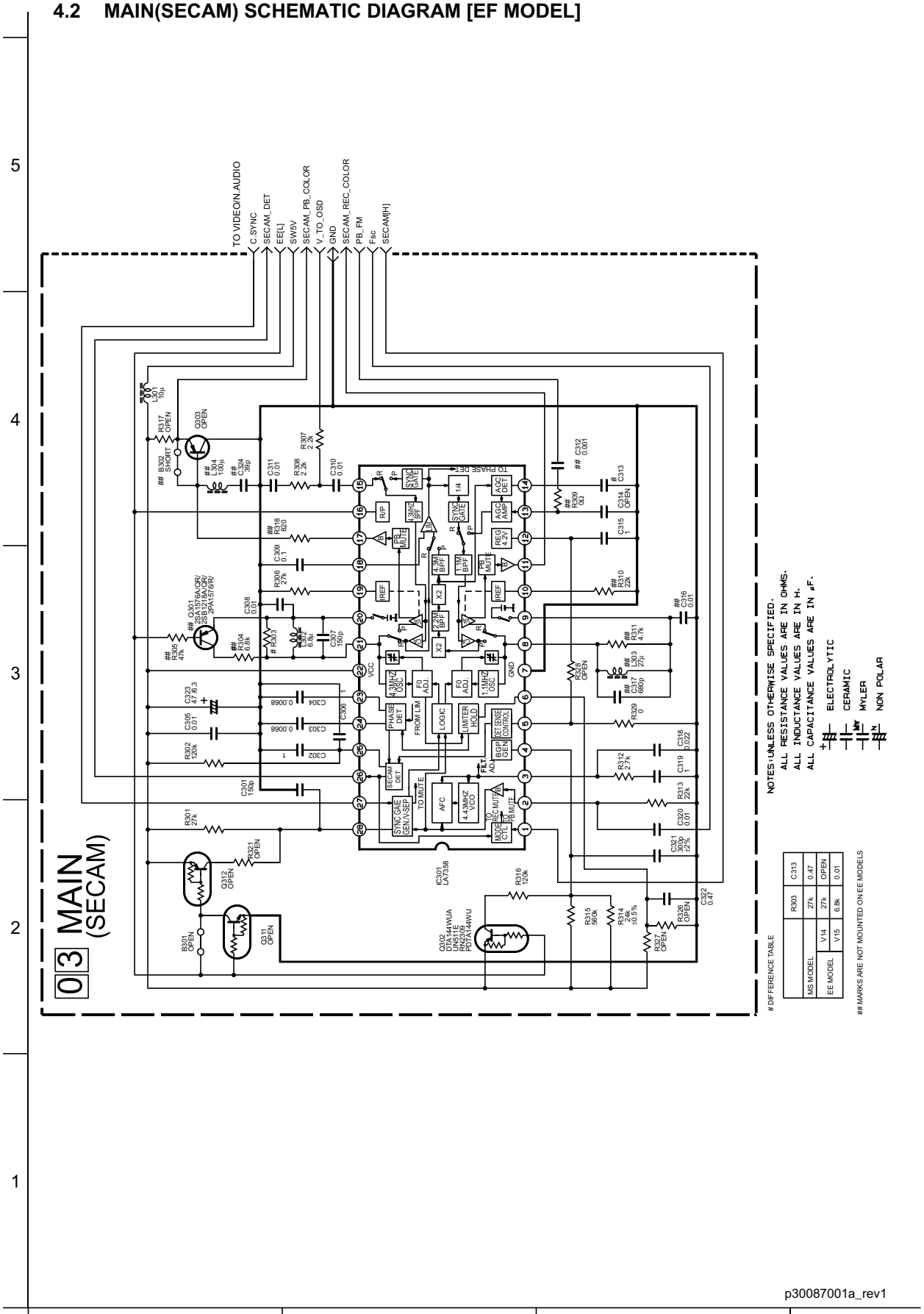




p20331001a_rev0

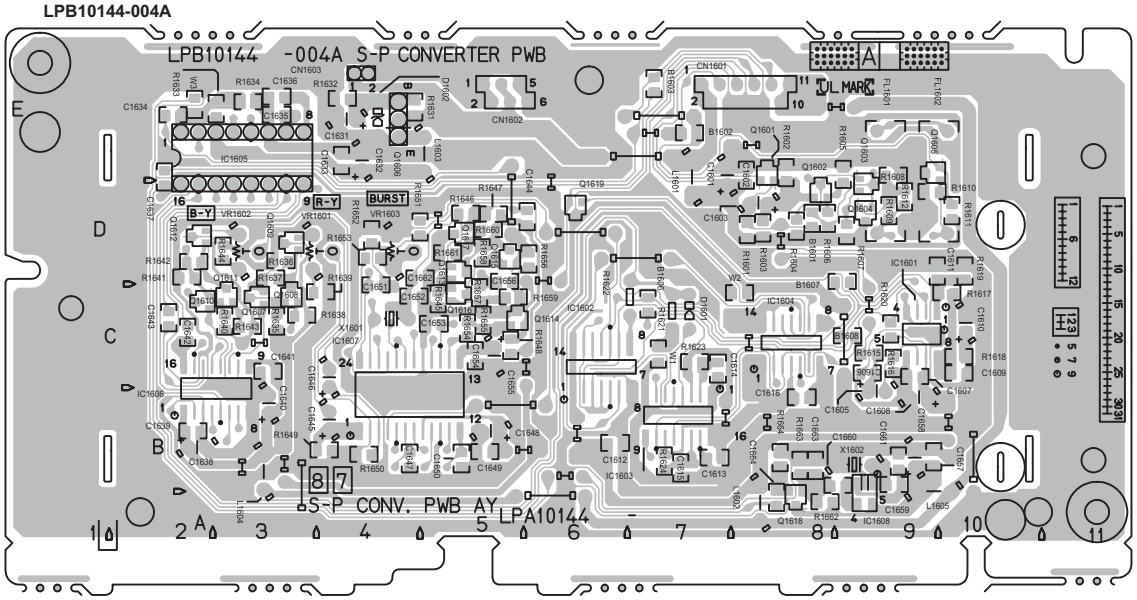
E F G

4.2 MAIN(SECAM) SCHEMATIC DIAGRAM [EF MODEL]



4.3 S-P CONVERTER CIRCUIT BOARD [EF MODEL]

<87> S-P CONVERTER
LPB10144-004A



COMPONENT PARTS LOCATION GUIDE <S-P CONVERTER> LPB10144-004A

REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION
CAPACITOR		C1647	B C 4B	IC1604	B C 8C	Q1619	B C 6D	R1638	B C 3C	VR1602	A D 3D
C1601	A D 7D	C1648	A D 5B	IC1605	A D 2E			R1639	B C 4C	VR1603	A D 4D
C1602	B C 8D	C1649	B C 5B	IC1606	B C 3B	**RESISTOR**		R1640	B C 3C	X1601	A D 4C
C1603	A D 8D	C1650	B C 5B	IC1607	B C 4B	R1601	B C 8D	R1641	B C 2C	X1602	A D 9B
C1605	A D 9B	C1651	B C 4C	IC1608	B C 9A	R1602	B C 8D	R1642	B C 2D		
C1606	B C 9B	C1652	B C 4C			R1603	B C 8D	R1643	B C 3C		
C1607	B C 9B	C1653	B C 5C	**COIL**		R1604	B C 8D	R1644	B C 3D		
C1608	A D 9B	C1654	B C 5C	L1601	A D 7E	R1605	B C 9D	R1645	B C 5C		
C1609	B C 10B	C1655	A D 5C	L1602	A D 8A	R1606	B C 8D	R1646	B C 5D		
C1610	A D 10C	C1656	B C 5C	L1603	A D 5E	R1607	B C 9D	R1647	B C 5D		
C1611	B C 9C	C1657	B C 9B	L1604	A D 3B	R1608	B C 9D	R1648	B C 5C		
C1612	B C 6B	C1658	A D 9B	L1605	A D 10A	R1609	B C 9D	R1649	B C 4B		
C1613	B C 7B	C1659	B C 9A			R1610	B C 9D	R1650	B C 4B		
C1614	B C 7B	C1660	B C 9A	**TRANSISTOR**		R1611	B C 10D	R1651	B C 5D		
C1615	B C 7B	C1661	B C 9B	Q1601	B C 8D	R1612	B C 9D	R1652	B C 4D		
C1616	B C 8B	C1662	B C 5C	Q1602	B C 8D	R1615	B C 9C	R1653	B C 4D		
C1631	A D 4E	C1663	B C 8B	Q1603	B C 9D	R1616	B C 9C	R1654	B C 5C		
C1632	A D 4D	C1664	B C 8A	Q1604	B C 9D	R1617	B C 10C	R1655	B C 5C		
C1633	B C 4D			Q1605	B C 9D	R1618	B C 10C	R1656	B C 6D		
C1634	B C 2E	**CONNECTOR**		Q1606	A D 4E	R1619	B C 10C	R1657	B C 5C		
C1635	B C 3E	CN1601	A D 7E	Q1607	B C 3C	R1620	B C 9C	R1658	B C 5D		
C1636	B C 3E	CN1602	A D 5E	Q1608	B C 3C	R1621	A D 7C	R1659	B C 5C		
C1637	B C 2D	CN1603	A D 4E	Q1609	B C 3D	R1622	A D 7C	R1660	B C 5D		
C1638	A D 2B			Q1610	B C 2C	R1623	B C 7C	R1661	B C 5D		
C1639	B C 2B	**DIODE**		Q1611	B C 3C	R1624	B C 7B	R1662	B C 8A		
C1640	A D 3B	D1601	A D 7C	Q1612	B C 2D	R1631	B C 4E	R1663	B C 8B		
C1641	B C 3B	D1602	A D 4E	Q1613	B C 5C	R1632	B C 4E	R1664	B C 8B		
C1642	B C 2C			Q1614	B C 5C	R1633	B C 3E				
C1643	B C 2C	**IC**		Q1615	B C 5D	R1634	B C 3E	**OTHER**			
C1644	B C 6D	IC1601	B C 9C	Q1616	B C 5C	R1635	B C 3C	FL1601	A D 9D		
C1645	A D 4B	IC1602	B C 6C	Q1617	B C 5D	R1636	B C 3D	FL1602	A D 10E		
C1646	A D 4B	IC1603	B C 7B	Q1618	B C 8A	R1637	B C 3C	VR1601	A D 3D		

SECTION 5
PARTS LIST

5.1 EXPLODED VIEW

SAFETY PRECAUTION

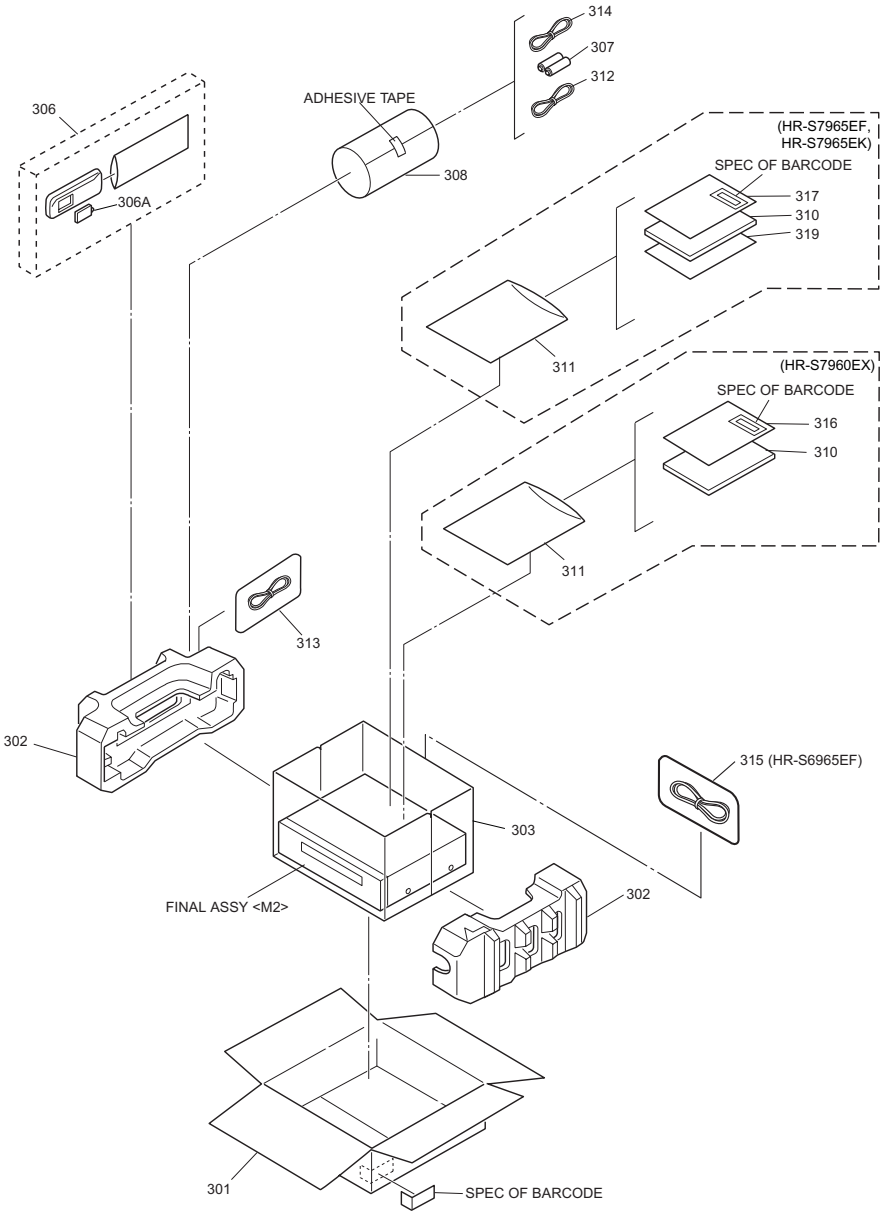
Parts identified by the ⚠ symbol are critical for safety. Replace only with specified part numbers.

BEWARE OF BOGUS PARTS

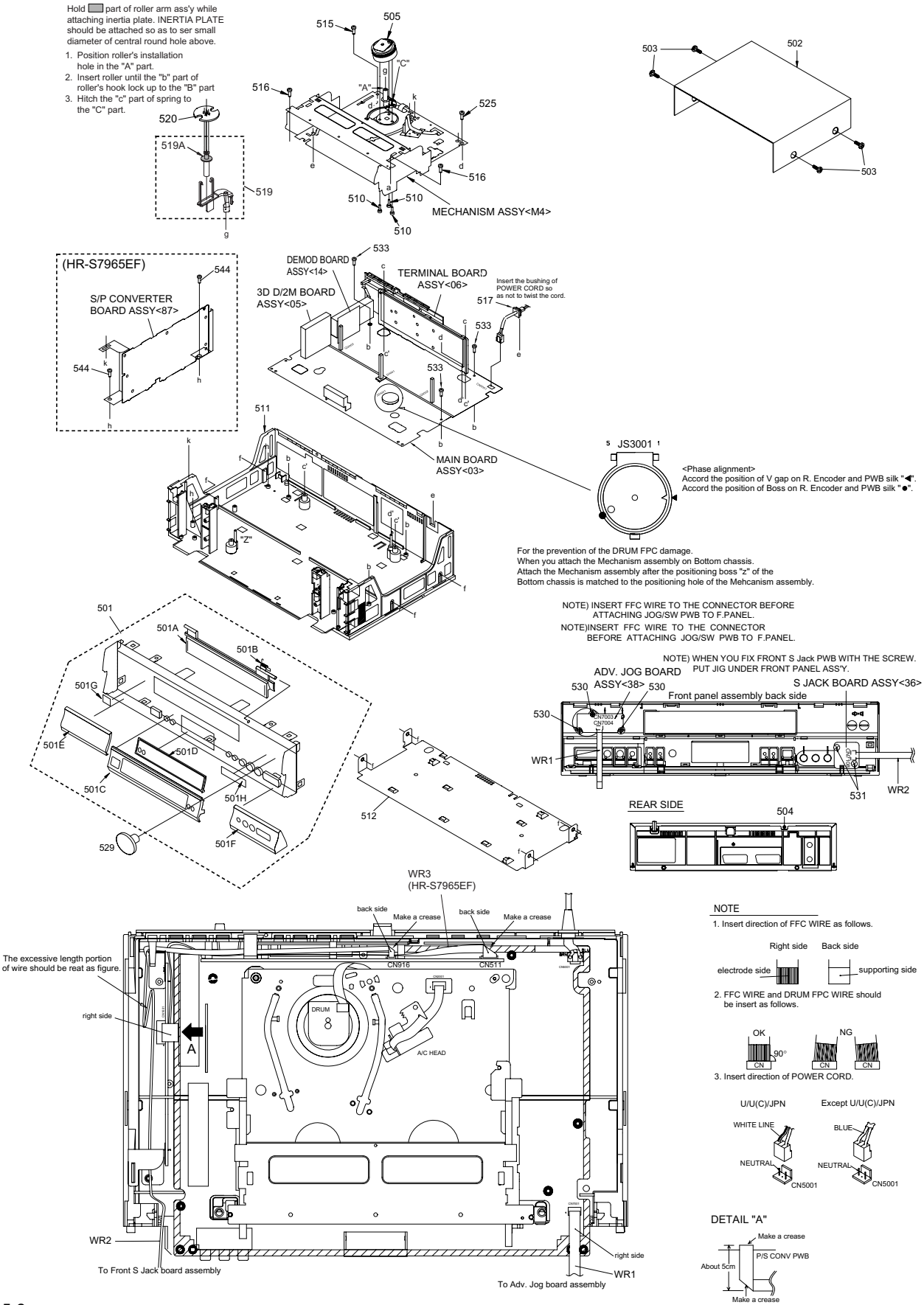
Parts that do not meet specifications may cause trouble in regard to safety and performance. We recommend that genuine JVC parts be used.

5.1.1 PACKING AND ACCESSORY ASSEMBLY <M1>

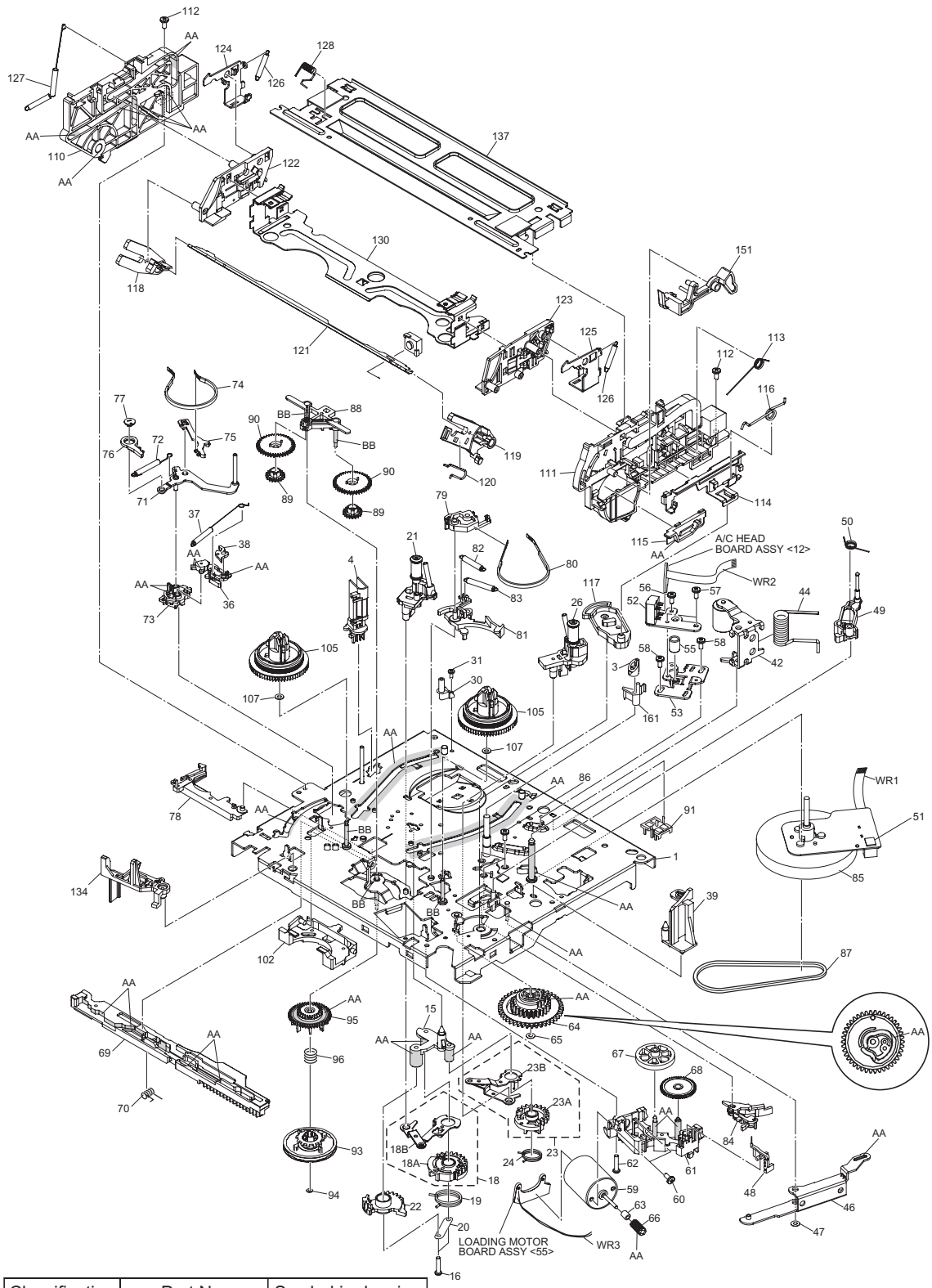
The instruction manual to be provided with this product will differ according to the destination.



5.1.2 FINAL ASSEMBLY <M2>



5.1.3 MECHANISM ASSEMBLY <M4>



Classification	Part No.	Symbol in drawing
Grease	KYODO-SH-JB	AA
Oil	COSMO-HV56	BB

NOTE: The section marked in **AA** and **BB** indicate lubrication and greasing areas.

5.2 PARTS LIST

MODEL	MARK
HR-S7960EX	A
HR-S7965EF	B
HR-S7965EK	C

#! REF No.	PART No.	PART NAME, DESCRIPTION	A B C
**********			
		PACKING AND ACCESSORY ASSEMBLY <M1>	
301	LP30855-004B	PACKING CASE	A B C
302	LP31187-001A	CUSHION ASSY	A B C
303	PQM30021-093	POLY BAG	A B C
306	LP20878-016A	REMOTE CTL UNIT	A B C
306A	LP40610-003A	COVER(BATTERY)	A B C
307	———	BATTERY,X2	A B C
308	QPC02202230P	POLY BAG,CABLE	A B C
⚠ 310	LPT0753-001A	INST.BOOK(ENGLISH),FOR EX	A
⚠ 310	LPT0753-002A	INST.BOOK(GERMANY),FOR EX&EY	A
⚠ 310	LPT0753-003A	INST.BOOK(FRENCH),FOR EX	A
⚠ 310	LPT0753-004A	INST.BOOK(DUTCH),FOR EX	A
⚠ 310	LPT0753-005A	INST.BOOK(SPANISH),FOR EX	A
⚠ 310	LPT0753-006A	INST.BOOK(ITALIAN),FOR EX	A
⚠ 310	LPT0753-007A	INST.BOOK(DANISH),FOR EY	A
⚠ 310	LPT0753-008A	INST.BOOK(FINNISH),FOR EY	A
⚠ 310	LPT0753-009A	INST.BOOK(SWEDISH),FOR EY	A
⚠ 310	LPT0753-010A	INST.BOOK(NORWEGIAN),FOR EY	A
⚠ 310	LPT0753-011A	INST.BOOK(PORTGUESE),FOR EX	A
⚠ 310	LPT0753-012A	INST.BOOK(GREEK),FOR EX	A
⚠ 310	LPT0753-013A	INST.BOOK(CZECH),FOR EZ	A
⚠ 310	LPT0753-014A	INST.BOOK(POLISH),FOR EZ	A
⚠ 310	LPT0753-015A	INST.BOOK(HUNGARIAN),FOR EZ	A
⚠ 310	LPT0775-001B	INST.BOOK(FRENCH)	B
⚠ 310	LPT0770-001A	INST.BOOK(ENGLISH)	C
311	QPC02503530P	POLY BAG,INST	A B C
312	PEAC0300-02	RF CABLE	A B C
313	QAL0517-005	LED CABLE ASSY	B C
315	QAM0238-003	PERI CABLE	B
316	BT-54013-6	WARRANTY CARD	A
317	BT-54008-4	GUARANTY CARD	B C
319	LYT0194-001B	Q.CARD(JUK)	C
**********			
		FINAL ASSEMBLY<M2>	
⚠ 501	LP10452-027C	FRONT PANEL ASSY	A
⚠ 501	LP10452-017C	FRONT PANEL ASSY	B
⚠ 501	LP10452-029C	FRONT PANEL ASSY	C
501A	LP21123-008B	CASSETTE DOOR	A B C
501B	PQ46448	TOR.SPRING	A B C
501C	LP21127-011B	COVER(WINDOW)	A C
501C	LP21127-007B	COVER(WINDOW)	B
501D	LP31188-016A	WINDOW(1)	A
501D	LP31188-009A	WINDOW(1)	B
501D	LP31188-018A	WINDOW(1)	C
501E	LP31142-013B	DOOR(JACK)	A
501E	LP31142-011B	DOOR(JACK)	B
501E	LP31142-015B	DOOR(JACK)	C
501F	LP30877-006A	COVER(R)	A B C
501G	LP41035-001A	STICKER	A B C
501H	LP41035-006A	STICKER	A B
501H	LP41035-007A	STICKER	C
⚠ 502	LP10013-051C	TOP COVER	A B C
503	QYTDSF3010R	TAP SCREW,X4,SIDE	A B C
504	QYTDSF3010M	TAP SCREW,REAR	A B C
505	PDV2544A	DRUM FINAL ASSY	A B C
510	QYSPSPD3008Z	SCREW,X3,DRUM	A B C
⚠ 511	LP10108-016H	BOTTOM CHASSIS	A C
⚠ 511	LP10108-016G	BOTTOM CHASSIS	B
⚠ 512	LP10014-002C	BOTTOM COVER	A B C
515	QYTDSF4012Z	TAP SCREW,FOR MECHA	A B C
516	QYSPSFG3010Z	TAP SCREW,X2,FOR MECHA	A B C
⚠ 517	QMP4A10-170	POWER CORD	A B
⚠ 517	QMP51K0-170-K	POWER CORD	C
519	LP40370-001F	ROLLER ARM ASSY	A B C
519A	PDM4311A-1	ROLLER ASS'Y	A B C
520	PQ45160	INERTIA PLATE	A B C
525	LP40700-001A	SPECIAL SCREW,FOR MECHA	A B C
529	LP30875-001B	KNOB(ADV.JOG)	A C
529	LP30875-002B	KNOB(ADV.JOG)	B
530	QYTPSFG2608Z	TAP SCREW,X3,FOR A/J	A B C
531	QYTDSF2608Z	TAP SCREW,X2,FOR S-JACK	A B C
533	DPSF3010Z	SCREW,X3,MAIN	A B C
544	QYTDSF3008Z	TAP SCREW,X2,S-P CONV.	B
WR1	QUQ212-0414CG	FFC WIRE,A.JOG(FSA)	A B C
WR2	QUQ212-0456CG	FFC WIRE,S.JAC(FSA)	A B C
WR3	QUQ112-1140CG	FFC WIRE,S/P CONV.	B
**********			
		MECHANISM ASSEMBLY<M4>	
1	LP21039-001U	MAIN DECK ASSY	A B C
3	LP40097-002E	GUIDE POLE CAP	A B C
4	QAH0082-001	FULL ERASE HEAD	A B C
15	LP30958-001B	LOAD.GEAR BASE	A B C
16	QYTPST2620Z	TAP SCREW,X2,L.G.BASE	A B C
18	LP40798-001A	LOAD.GEAR(SUPPLY) ASSY	A B C
18A	LP21040-001A	LOAD.GEAR(SUPPLY)	A B C
18B	LP40799-001A	LOAD.ARM(SUPPLY) ASSY	A B C
19	LP40837-001A	TORSION SPRING(S),L.GEAR(S)	A B C
20	LP40903-002B	FIXING PLATE	A B C
21	LP40806-001D	POLE BASE ASSY(SUPPLY)	A B C
22	LP30959-002B	LOAD GEAR	A B C
23	LP40802-001C	LOAD.GEAR(TAKE UP) ASSY	A B C
23A	LP21041-001D	LOAD.GEAR(TAKE UP)	A B C
23B	LP40803-001A	LOAD.ARM(TAKE UP) ASSY	A B C
24	LP40838-001A	TORSION SPRING(T),L.GEAR(T)	A B C
26	LP40808-001E	POLE BASE ASSY(TAKE UP)	A B C
30	LP31020-004B	ARM BASE	A B C
31	QYTDST2606Z	TAP SCREW	A B C
36	LP21055-001F	TU LEVER	A B C
37	LP40943-001A	TENSION SPRING	A B C
38	LP40859-001D	T-UP HEAD	A B C
39	LP30961-001C	LID GUIDE	A B C
42	LP40810-001B	PINCH ROLLER ARM ASSY	A B C
44	LP40840-001D	TORSION SPRING,P.ROLLER	A B C
46	LP30963-001B	PRESS LEVER	A B C
47	PQM30017-24	SLIT WASHER,P.LEVER	A B C
48	LP40930-002E	S-SWITCH	A B C
49	LP40813-001D	GUIDE ARM ASSY	A B C
50	LP40841-001A	TORSION SPRING,G.ARM	A B C
51	LP30002-090A	SPACER,CAPSTAN MOTOR	A B C
52	QAH0081-001	AC HEAD	A B C
53	LP30965-001A	HEAD BASE	A B C
55	LP40842-001D	COMPRESSION SPRING	A B C

MODEL	MARK
HR-S7960EX	A
HR-S7965EF	B
HR-S7965EK	C

#!	REF No.	PART No.	PART NAME, DESCRIPTION	A	B	C
	56	QYTDST2006M	TAP SCREW,A/C HEAD	A	B	C
	57	LP41036-001A	A/C ADJ.SCREW,X2,A/C HEAD	A	B	C
	58	QYTDST2606Z	TAP SCREW,X2,A/C HEAD	A	B	C
	59	QAR0023-001	LOADING MOTOR	A	B	C
	60	QYTPSP3003Z	SCREW,X2,L.MOTOR	A	B	C
	61	LP21056-002J	MOTOR BRACKET	A	B	C
	62	QYTPST2620Z	TAP SCREW,M.BKT	A	B	C
	63	LP40814-001B	WORM BEARING	A	B	C
	64	LP21044-001E	CONTROL CAM	A	B	C
	65	PQM30017-24	SLIT WASHER,CTL.CAM	A	B	C
	66	LP40815-001A	WORM GEAR	A	B	C
	67	LP40816-001B	HELICAL GEAR,M.BKT	A	B	C
	68	LP40817-001A	CONNECT GEAR	A	B	C
	69	LP10400-001J	CONTROL PLATE	A	B	C
	70	LP40843-001A	TORSION SPRING	A	B	C
	71	LP40818-001B	TENSION ARM ASSY	A	B	C
	72	LP40844-001E	TENSION SPRING,T.ARM	A	B	C
	73	LP21045-001D	TENSION ARM BASE	A	B	C
	74	LP40821-001A	TENSION BAND ASSY	A	B	C
	75	LP30967-001B	BAND HOLDER-1	A	B	C
	76	LP30968-001C	BAND HOLDER-2	A	B	C
	77	LP40822-002B	ADJUST PIN	A	B	C
	78	LP31000-005E	TENSION ARM LEVER	A	B	C
	79	LP21046-001C	MAIN BRAKE(TAKE UP)	A	B	C
	80	LP40824-001A	BAND BRAKE ASSY	A	B	C
	81	LP30969-002B	BRAKE LEVER	A	B	C
	82	LP30003-033B	TENSION SPRING,BRK LEVER	A	B	C
	83	LP30003-035B	TENSION SPRING,BRK LEVER	A	B	C
	84	LP40825-001B	CAPSTAN BRAKE ASSY	A	B	C
⚠	85	QAR0224-002	CAPSTAN MOTOR	A	B	C
	86	QYTPSG2606Z	TAP SCREW,X3,CAP.MOTOR	A	B	C
	87	LP30005-010A	BELT,CAPSTAN MOTOR	A	B	C
	88	LP30970-001A	IDLER ARM	A	B	C
	89	LP40828-004A	IDLER GEAR 1,X2	A	B	C
	90	LP40829-001B	IDLER GEAR 2,X2	A	B	C
	91	LP31014-001A	WIRE HOLDER	A	B	C
	93	LP40934-001B	CLUTCH UNIT	A	B	C
	94	PQM30017-47	SLIT WASHER,CLUT.UNIT	A	B	C
	95	LP30973-001A	DIRECT GEAR	A	B	C
	96	LP40939-001A	COMPRESION SPRING,DIR.GEAR	A	B	C
	102	LP30974-001C	CHANGE LEVER	A	B	C
	105	LP21049-001A	REEL DISK,X2	A	B	C
	107	LP30017-004A	SPACER,X2,REEL DISK	A	B	C
	110	LP10401-001H	SIDE FRAME(L)	A	B	C
	111	LP10402-001K	SIDE FRAME(R)	A	B	C
	112	QYTDST2606Z	TAP SCREW,X2,FOR MECHA	A	B	C
	113	LP40917-001D	TORSION SPRING,FOR DUMP.	A	B	C
	114	LP30976-001E	SIDE PLATE	A	B	C
	115	LP30977-002D	LIMIT PLATE	A	B	C
	116	LP40846-001C	LIMIT SPRING,SIDE PLATE	A	B	C
	117	LP31100-001B	DRIVE LEVER	A	B	C
	118	LP30978-001B	DRIVE ARM(L)	A	B	C
	119	LP30979-001P	DRIVE ARM(R)	A	B	C
	120	LP40847-001B	TORSION SPRING,D.ARM(R)	A	B	C
	121	LP30980-001E	CONNECT PLATE	A	B	C
	122	LP10403-001C	SIDE HOLDER(L)	A	B	C
	123	LP10404-001E	SIDE HOLDER(R)	A	B	C
	124	LP30983-001B	LOCK LEVER(L)	A	B	C
	125	LP30984-001B	LOCK LEVER(R)	A	B	C
	126	LP40924-001D	TENSION SPRING,X2,L.LEVER	A	B	C
	127	LP40972-001A	EARTH SPRING(1)	A	B	C
	128	LP40857-001B	EARTH SPRING(2),TOP FRAME	A	B	C
	130	LP30981-001G	CASSETTE HOLDER ASSY	A	B	C
	134	LP21051-002C	REC SAFETY LEVER	A	B	C
	137	LP21052-001J	TOP FRAME	A	B	C
	151	LP30985-001G	DOOR OPENER,SIDE FRM(R)	A	B	C
	161	LP40993-001A	TAPE GUIDE	A	B	C
	WR1	WJT0059-001D	E-CARD WIRE,CAP MOTOR	A	B	C
	WR2	WJT0067-001B	E-CARD WIRE,A/C HEAD	A	B	C
	WR3	WJS0022-001A	E-FL/RB WIRE,L.MOTOR	A	B	C

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MAIN BOARD ASSEMBLY<03>

PW1 MAIN BOARD ASS'Y<03> includes the parts shown in the following.
PW1 3D D/2M BOARD ASS'Y<05>
PW1 TERMINAL BOARD ASS'Y<06>
PW1 DEMOD BOARD ASS'Y<14>

	PW1	LPA10170-09B	MAIN PWB ASSY,HR-S7960EX	A		
	PW1	LPA10170-08B	MAIN PWB ASSY,HR-S7965EF		B	
	PW1	LPA10170-12B	MAIN PWB ASSY,HR-S7965EK			C
	IC1	JCP8051-MSA	IC,VIDEO	A	B	C
	IC201	LC74776-9791	IC	A	B	C
	IC2201	AN3651FBP	IC	A	B	C
	IC3001	HD6432194SBD35F	IC(MCU),MAIN CPU	A		C
	IC3001	HD6432194SAD36F	IC(MCU),MAIN CPU		B	
	IC3001 or	HD64F2194CFD35	IC(MCU),MAIN CPU	A		C
	IC3001 or	HD64F2194CFD36	IC(MCU),MAIN CPU		B	
	IC3002	IC-PST3427U-X	IC,RESET	A	B	C
	IC3003	(*REFER TO BELOW)	IC,EEPROM(32K)	A	B	C
	IC7002	GP1UM291QK	IR DETECT UNIT	A	B	C
	Q1	2SC4081/QRS/-X	TRANSISTOR,SP1 SHORT	A	B	C
	Q1 or	2PC4081/R/-X	TRANSISTOR	A	B	C
	Q2	2SC4081/QRS/-X	TRANSISTOR,SP2 SHORT	A	B	C
	Q2 or	2PC4081/R/-X	TRANSISTOR	A	B	C
	Q3	2SC4081/QRS/-X	TRANSISTOR,EP1 SHORT	A	B	C
	Q3 or	2PC4081/R/-X	TRANSISTOR	A	B	C
	Q4	2SC4081/QRS/-X	TRANSISTOR,EP2 SHORT	A	B	C
	Q4 or	2PC4081/R/-X	TRANSISTOR	A	B	C
	Q7	2SC4081/QRS/-X	TRANSISTOR,RF EQ(S)	A	B	C
	Q7 or	2PC4081/R/-X	TRANSISTOR	A	B	C
	Q8	2SC4081/QRS/-X	TRANSISTOR,RF EQ(S)	A	B	C
	Q8 or	2PC4081/R/-X	TRANSISTOR	A	B	C
	Q9	2SA1576A/QR/-X	TRANSISTOR,RF EQ(S)	A	B	C
	Q9 or	2PA1576/R/-X	TRANSISTOR	A	B	C
	Q10	2SA1576A/QR/-X	TRANSISTOR,FSC BUF	A	B	C
	Q10 or	2PA1576/R/-X	TRANSISTOR	A	B	C
	Q14	2SA1576A/QR/-X	TRANSISTOR,SECAM REC		B	
	Q14 or	2PA1576/R/-X	TRANSISTOR,S		B	
	Q16	DTC144WUA-X	DIGI TRANSISTOR,DEMP(SP/EP)	A	B	C
	Q16 or	UN521E-X	DIGI TRANSISTOR	A	B	C
	Q16 or	RN1309-X	DIGI TRANSISTOR	A	B	C
	Q16 or	PDTC144WU-X	DIGI TRANSISTOR	A	B	C
	Q18	DTC144WUA-X	DIGI TRANSISTOR,SECAM		B	
	Q18 or	UN521E-X	DIGI TRANSISTOR		B	
	Q18 or	RN1309-X	DIGI TRANSISTOR		B	
	Q18 or	PDTC144WU-X	DIGI TRANSISTOR		B	
	Q19	DTC144WUA-X	DIGI TRANSISTOR,SECAM		B	
	Q19 or	UN521E-X	DIGI TRANSISTOR		B	
	Q19 or	RN1309-X	DIGI TRANSISTOR		B	

* S7960EX : LPN0797-002B-02 The VCR goes to jig RCU mode after replacing the EEPROM and the VCR does not accept some RCU command.
S7965EF : LPN0798-001B-82 Therefore please set the VCR to the user RCU mode after replacing the EEPROM.
S7965EK : LPN0797-005B-03 The method of setting the VCR to the user RCU mode is written on the service manual.

MODEL	MARK
HR-S7960EX	A
HR-S7965EF	B
HR-S7965EK	C

#!	REF No.		PART No.	PART NAME, DESCRIPTION	A	B	C
	Q19	or	PDTC144WU-X	DIGI TRANSISTOR		B	
	Q21		2SA1576A/QR/-X	TRANSISTOR,PB C BUF	A	B	C
	Q21	or	2PA1576/R/-X	TRANSISTOR	A	B	C
	Q24		2SA1576A/QR/-X	TRANSISTOR,2FSC BUF	A	B	C
	Q24	or	2PA1576/R/-X	TRANSISTOR	A	B	C
	Q25		DTC144WUA-X	DIGI TRANSISTOR,C.K.(3D)	A	B	C
	Q25	or	UN521E-X	DIGI TRANSISTOR	A	B	C
	Q25	or	RN1309-X	DIGI TRANSISTOR	A	B	C
	Q25	or	PDTC144WU-X	DIGI TRANSISTOR	A	B	C
	Q38		2SC4081/QRS/-X	TRANSISTOR,Y BDL	A	B	C
	Q38	or	2PC4081/R/-X	TRANSISTOR	A	B	C
	Q41		DTC144WUA-X	DIGI TRANSISTOR,MESECAM	A	B	C
	Q41	or	UN521E-X	DIGI TRANSISTOR	A	B	C
	Q41	or	RN1309-X	DIGI TRANSISTOR	A	B	C
	Q41	or	PDTC144WU-X	DIGI TRANSISTOR	A	B	C
	Q50		DTC144WUA-X	DIGI TRANSISTOR,EE(L)	A	B	C
	Q50	or	UN521E-X	DIGI TRANSISTOR	A	B	C
	Q50	or	RN1309-X	DIGI TRANSISTOR	A	B	C
	Q50	or	PDTC144WU-X	DIGI TRANSISTOR	A	B	C
	Q207		2SA1576A/QR/-X	TRANSISTOR,OSD OUT	A	B	C
	Q207	or	2PA1576/R/-X	TRANSISTOR,OSD OUT	A	B	C
	Q208		2SC4081/QRS/-X	TRANSISTOR,OSD OUT	A	B	C
	Q208	or	2PC4081/R/-X	TRANSISTOR,OSD OUT	A	B	C
	Q301		2SB1218A/QR/-X	TRANSISTOR		B	
	Q301	or	2SA1576A/QR/-X	TRANSISTOR		B	
	Q301	or	2PA1576/R/-X	TRANSISTOR		B	
	Q302		UN511E-X	DIGI TRANSISTOR		B	
	Q302	or	DTA144WUA-X	DIGI TRANSISTOR		B	
	Q302	or	RN2309-X	D TRANSISTOR		B	
	Q302	or	PDTA144WU-X	DIGI TRANSISTOR		B	
	Q2001		2SC4081/QRS/-X	TRANSISTOR	A	B	C
	Q2001	or	2SD1819A/QRS/-X	TRANSISTOR	A	B	C
	Q2001	or	2PC4081/R/-X	TRANSISTOR	A	B	C
	Q2002		2SC4081/QRS/-X	TRANSISTOR	A	B	C
	Q2002	or	2SD1819A/QRS/-X	TRANSISTOR	A	B	C
	Q2002	or	2PC4081/R/-X	TRANSISTOR	A	B	C
	Q2003		DTA144WUA-X	DIGI TRANSISTOR	A	B	C
	Q2003	or	UN511E-X	DIGI TRANSISTOR	A	B	C
	Q2003	or	RN2309-X	D TRANSISTOR	A	B	C
	Q2003	or	PDTA144WU-X	DIGI TRANSISTOR	A	B	C
	Q2004		DTC144WUA-X	DIGI TRANSISTOR	A	B	C
	Q2004	or	PDTC144WU-X	DIGI TRANSISTOR	A	B	C
	Q2004	or	UN521E-X	DIGI TRANSISTOR	A	B	C
	Q2004	or	RN1309-X	DIGI TRANSISTOR	A	B	C
	Q2051		2SC4081/QRS/-X	TRANSISTOR	A	B	C
	Q2051	or	2SD1819A/QRS/-X	TRANSISTOR	A	B	C
	Q2051	or	2PC4081/R/-X	TRANSISTOR	A	B	C
	Q2052		2SA1576A/QR/-X	TRANSISTOR	A	B	C
	Q2052	or	2SB1218A/QR/-X	TRANSISTOR	A	B	C
	Q2052	or	2PA1576/R/-X	TRANSISTOR	A	B	C
	Q2053		DTC144WUA-X	DIGI TRANSISTOR	A	B	C
	Q2053	or	UN521E-X	DIGI TRANSISTOR	A	B	C
	Q2053	or	RN1309-X	DIGI TRANSISTOR	A	B	C
	Q2053	or	PDTC144WU-X	DIGI TRANSISTOR	A	B	C
	Q2054		2SA1576A/QR/-X	TRANSISTOR	A	B	C
	Q2054	or	2SB1218A/QR/-X	TRANSISTOR	A	B	C
	Q2054	or	2PA1576/R/-X	TRANSISTOR	A	B	C
	Q2055		DTC144WUA-X	DIGI TRANSISTOR	A	B	C
	Q2055	or	UN521E-X	DIGI TRANSISTOR	A	B	C
	Q2055	or	RN1309-X	DIGI TRANSISTOR	A	B	C
	Q2055	or	PDTC144WU-X	DIGI TRANSISTOR	A	B	C

#!	REF No.		PART No.	PART NAME, DESCRIPTION	A	B	C
	Q2201		DTA144WUA-X	DIGI TRANSISTOR	A	B	C
	Q2201	or	PDTA144WU-X	DIGI TRANSISTOR	A	B	C
	Q2201	or	UN511E-X	DIGI TRANSISTOR	A	B	C
	Q2201	or	RN2309-X	D TRANSISTOR	A	B	C
	Q2202		DTC144WUA-X	DIGI TRANSISTOR	A	B	C
	Q2202	or	PDTC144WU-X	DIGI TRANSISTOR	A	B	C
	Q2202	or	UN521E-X	DIGI TRANSISTOR	A	B	C
	Q2202	or	RN1309-X	DIGI TRANSISTOR	A	B	C
	Q2203		2SC4081/QRS/-X	TRANSISTOR	A	B	C
	Q2203	or	2PC4081/R/-X	TRANSISTOR	A	B	C
	Q2203	or	2SD1819A/QRS/-X	TRANSISTOR	A	B	C
	Q2204		2SC4081/QRS/-X	TRANSISTOR	A	B	C
	Q2204	or	2PC4081/R/-X	TRANSISTOR	A	B	C
	Q2204	or	2SD1819A/QRS/-X	TRANSISTOR	A	B	C
	Q2251		DTC144WUA-X	DIGI TRANSISTOR	A	B	C
	Q2251	or	PDTC144WU-X	DIGI TRANSISTOR	A	B	C
	Q2251	or	UN521E-X	DIGI TRANSISTOR	A	B	C
	Q2251	or	RN1309-X	DIGI TRANSISTOR	A	B	C
	Q2252		DTC144WUA-X	DIGI TRANSISTOR	A	B	C
	Q2252	or	PDTC144WU-X	DIGI TRANSISTOR	A	B	C
	Q2252	or	UN521E-X	DIGI TRANSISTOR	A	B	C
	Q2252	or	RN1309-X	DIGI TRANSISTOR	A	B	C
	Q2253		DTC144WUA-X	DIGI TRANSISTOR	A	B	C
	Q2253	or	PDTC144WU-X	DIGI TRANSISTOR	A	B	C
	Q2253	or	UN521E-X	DIGI TRANSISTOR	A	B	C
	Q2253	or	RN1309-X	DIGI TRANSISTOR	A	B	C
	Q2254		DTC114EUA-X	DIGI TRANSISTOR	A	B	C
	Q2254	or	PDTC114EU-X	DIGI TRANSISTOR	A	B	C
	Q2254	or	UN5211-X	DIGI TRANSISTOR	A	B	C
	Q2254	or	RN1302-X	DIGI TRANSISTOR	A	B	C
	Q2255		DTC114EUA-X	DIGI TRANSISTOR	A	B	C
	Q2255	or	PDTC114EU-X	DIGI TRANSISTOR	A	B	C
	Q2255	or	UN5211-X	DIGI TRANSISTOR	A	B	C
	Q2255	or	RN1302-X	DIGI TRANSISTOR	A	B	C
	Q3002		PTZ-NV16A	IC(PHOTO SENSOR),STA.SENSOR	A	B	C
	Q3003		PTZ-NV16A	IC(PHOTO SENSOR),END SENSOR	A	B	C
	Q3004		2SD1819A/QRS/-X	TRANSISTOR,POWER DET	A	B	C
	Q3004	or	2SC4081/QRS/-X	TRANSISTOR,POWER DET	A	B	C
	Q3004	or	2PC4081/R/-X	TRANSISTOR,POWER DET	A	B	C
	Q3005		2SD1819A/QRS/-X	TRANSISTOR,SVCC	A	B	C
	Q3005	or	2SC4081/QRS/-X	TRANSISTOR,SVCC	A	B	C
	Q3005	or	2PC4081/R/-X	TRANSISTOR,SVCC	A	B	C
	Q3007		UN521E-X	DIGI TRANSISTOR,P50	A	B	C
	Q3007	or	DTC144WUA-X	DIGI TRANSISTOR,P50	A	B	C
	Q3007	or	PDTC144WU-X	DIGI TRANSISTOR,P50	A	B	C
	Q3007	or	RN1309-X	DIGI TRANSISTOR,P50	A	B	C
	Q4001		UN5211-X	DIGI TRANSISTOR	A	B	C
	Q4001	or	DTC114EUA-X	DIGI TRANSISTOR	A	B	C
	Q4001	or	RN1302-X	DIGI TRANSISTOR	A	B	C
	Q4001	or	PDTC114EU-X	DIGI TRANSISTOR	A	B	C
	Q5101		2SK2632-CB14	POWER MOS FET	A	B	C
	Q5101	or	2SK2129-LT	POWER MOS FET	A	B	C
	Q5101	or	2SK2632	POWER MOS FET	A	B	C
	Q5101	or	2SK2129	POWER MOS FET	A	B	C
	Q5102		2SD2144S/UV/-T	TRANSISTOR	A	B	C
	Q5301		2SC1740S/RS/-T	TRANSISTOR	A	B	C
	Q5301	or	2SC3199/YG/-T	TRANSISTOR	A	B	C
	Q5303		2SC5739/QP/	POW TRANSISTOR,SW5V	A	B	C
	Q5304		2SD2144S/UV/-T	TRANSISTOR,SW12V	A	B	C
	Q5305		DTA114EUA-X	DIGI TRANSISTOR,SW12V	A	B	C
	Q5305	or	UN5111-X	DIGI TRANSISTOR,SW12V	A	B	C

MODEL	MARK
HR-S7960EX	A
HR-S7965EF	B
HR-S7965EK	C

#!	REF No.	PART No.	PART NAME, DESCRIPTION		A	B	C
	Q5305	or RN2302-X	D TRANSISTOR,SW12V		A	B	C
	Q5305	or PDTA114EU-X	DIGI TRANSISTOR,SW12V		A	B	C
	Q5306	DTC114EUA-X	DIGI TRANSISTOR,SW12V		A	B	C
	Q5306	or UN5211-X	DIGI TRANSISTOR,SW12V		A	B	C
	Q5306	or RN1302-X	DIGI TRANSISTOR,SW12V		A	B	C
	Q5306	or PDTC114EU-X	DIGI TRANSISTOR,SW12V		A	B	C
	Q5307	2SD2144S/UV/-T	TRANSISTOR,RF5V		A	B	C
	Q6030	2SB1218A/QR/-X	TRANSISTOR,V BUFF		A	B	C
	Q6030	or 2SA1576A/QR/-X	TRANSISTOR		A	B	C
	Q6030	or 2PA1576/R/-X	TRANSISTOR		A	B	C
	Q6031	DTC114EUA-X	DIGI TRANSISTOR		A	B	C
	Q6031	or UN5211-X	DIGI TRANSISTOR		A	B	C
	Q6031	or RN1302-X	DIGI TRANSISTOR		A	B	C
	Q6031	or PDTC114EU-X	DIGI TRANSISTOR		A	B	C
	Q6032	DTC114EUA-X	DIGI TRANSISTOR		A	B	C
	Q6032	or UN5211-X	DIGI TRANSISTOR		A	B	C
	Q6032	or RN1302-X	DIGI TRANSISTOR		A	B	C
	Q6032	or PDTC114EU-X	DIGI TRANSISTOR		A	B	C
	Q7001	2SB1218A/QR/-X	TRANSISTOR		A	B	C
	Q7001	or 2SA1576A/QR/-X	TRANSISTOR		A	B	C
	Q7001	or 2PA1576/R/-X	TRANSISTOR		A	B	C
	Q7002	2SB1218A/QR/-X	TRANSISTOR		A	B	C
	Q7002	or 2SA1576A/QR/-X	TRANSISTOR		A	B	C
	Q7002	or 2PA1576/R/-X	TRANSISTOR		A	B	C
	Q7003	2SB1218A/QR/-X	TRANSISTOR		A	B	C
	Q7003	or 2SA1576A/QR/-X	TRANSISTOR		A	B	C
	Q7003	or 2PA1576/R/-X	TRANSISTOR		A	B	C
	Q7004	2SB1218A/QR/-X	TRANSISTOR		A	B	C
	Q7004	or 2SA1576A/QR/-X	TRANSISTOR		A	B	C
	Q7004	or 2PA1576/R/-X	TRANSISTOR		A	B	C
	Q7005	2SB1218A/QR/-X	TRANSISTOR		A	B	C
	Q7005	or 2SA1576A/QR/-X	TRANSISTOR		A	B	C
	Q7005	or 2PA1576/R/-X	TRANSISTOR		A	B	C
	Q7006	2SB1218A/QR/-X	TRANSISTOR,V15 7SEG		A	B	C
	Q7006	or 2SA1576A/QR/-X	TRANSISTOR		A	B	C
	Q7006	or 2PA1576/R/-X	TRANSISTOR		A	B	C
	Q7007	2SB1218A/QR/-X	TRANSISTOR,V15 7SEG		A	B	C
	Q7007	or 2SA1576A/QR/-X	TRANSISTOR		A	B	C
	Q7007	or 2PA1576/R/-X	TRANSISTOR		A	B	C
	Q7008	DTC143TUA-X	DIGI TRANSISTOR		A	B	C
	Q7008	or UN5216-X	D TRANSISTOR		A	B	C
	Q7009	DTC143TUA-X	DIGI TRANSISTOR		A	B	C
	Q7009	or UN5216-X	D TRANSISTOR		A	B	C
	Q7010	DTC143TUA-X	DIGI TRANSISTOR		A	B	C
	Q7010	or UN5216-X	D TRANSISTOR		A	B	C
	Q7011	DTC143TUA-X	DIGI TRANSISTOR		A	B	C
	Q7011	or UN5216-X	D TRANSISTOR		A	B	C
	Q7012	DTC143TUA-X	DIGI TRANSISTOR		A	B	C
	Q7012	or UN5216-X	D TRANSISTOR		A	B	C
	Q7013	DTC143TUA-X	DIGI TRANSISTOR		A	B	C
	Q7013	or UN5216-X	D TRANSISTOR		A	B	C
	Q7014	DTC143TUA-X	DIGI TRANSISTOR		A	B	C
	Q7014	or UN5216-X	D TRANSISTOR		A	B	C
	Q7201	2SC1317/RS/-T	TRANSISTOR		A	B	C
	D1	QUY153-050Y	IM BUS WIRE,ESD		A	B	C
	D201	QRE141J-152Y	C RESISTOR,OSD CS	1.5kΩ,1/4W	A	B	C
	D202	QRE141J-101Y	C RESISTOR,S.CLK	100Ω,1/4W	A	B	C
	D203	QRE141J-101Y	C RESISTOR,S.DATA	100Ω,1/4W	A	B	C
	D2251	1SS133-T2	SI DIODE		A	B	C
	D2251	or 1SS270A-T2	SI DIODE		A	B	C
	D3001	LNB2301L01VI	IR LED,LED		A	B	C

#!	REF No.	PART No.	PART NAME, DESCRIPTION		A	B	C
	D3002	1SS133-T2	SI DIODE		A	B	C
	D3002	or 1SS270A-T2	SI DIODE		A	B	C
	D3003	RD39ES/B3/-T2	Z DIODE,POWER DET		A	B	C
	D3003	or MTZJ39C-T2	Z DIODE,POWER DET		A	B	C
	D3004	11ES2-T2	SI DIODE,BU5V		A	B	C
	D3004	or 1A3G-T2	SI DIODE,BU5V		A	B	C
	D3005	11ES2-T2	SI DIODE,AL5V		A	B	C
	D3005	or 1A3G-T2	SI DIODE,AL5V		A	B	C
	D3008	1SS355-X	SI DIODE,P50		A	B	C
	D4001	QUY153-050Y	IM BUS WIRE		A	B	C
	D4002	QUY153-050Y	IM BUS WIRE		A	B	C
	D5001	S1WB/A/60-4102	BRIDGE DIODE		A	B	C
	D5001	or S1WB/A/60-X	BRIDGE DIODE		A	B	C
	D5001	or S1WB(A)60F4072X	BRIDGE DIODE		A	B	C
	D5101	AU01-T2	SI DIODE		A	B	C
	D5101	or 1SR153-400-T2	FR DIODE		A	B	C
	D5101	or ERA18-04-T2	FR DIODE		A	B	C
	D5101	or 10ELS4-T2	FR DIODE		A	B	C
	D5102	AU01-T2	SI DIODE		A	B	C
	D5102	or 1SR153-400-T2	FR DIODE		A	B	C
	D5102	or ERA18-04-T2	FR DIODE		A	B	C
	D5102	or 10ELS4-T2	FR DIODE		A	B	C
	D5103	1SS133-T2	SI DIODE		A	B	C
	D5103	or 1SS270A-T2	SI DIODE		A	B	C
	D5105	1SS133-T2	SI DIODE		A	B	C
	D5105	or 1SS270A-T2	SI DIODE		A	B	C
	D5203	AU01Z-T2	FR DIODE		A	B	C
	D5203	or 10ELS2-T2	FR DIODE		A	B	C
	D5204	AU01Z-T2	FR DIODE		A	B	C
	D5204	or 10ELS2-T2	FR DIODE		A	B	C
	D5207	AK04-T2	SB DIODE,6V		A	B	C
	D5207	or 11EQS04-T2	SB DIODE,6V		A	B	C
	D5207	or 1S4-T2	SB DIODE,6V		A	B	C
	D5207	or SBO40-T2	SB DIODE,6V		A	B	C
	D5209	AK04-T2	SB DIODE,6V		A	B	C
	D5209	or 11EQS04-T2	SB DIODE,6V		A	B	C
	D5209	or 1S4-T2	SB DIODE,6V		A	B	C
	D5209	or SBO40-T2	SB DIODE,6V		A	B	C
	D5210	AU01Z-T2	FR DIODE,BT2		A	B	C
	D5210	or ERA18-02-T2	FR DIODE,BT2		A	B	C
	D5210	or 1SR153-400-T2	FR DIODE,BT2		A	B	C
	D5210	or 10ELS2-T2	FR DIODE,BT2		A	B	C
	D5210	or PG104RS-T2	FR DIODE,BT2		A	B	C
	D5301	MTZJ15C-T2	Z DIODE		A	B	C
	D5301	or RD15ES/B3/-T2	Z DIODE		A	B	C
	D5302	MTZJ11C-T2	Z DIODE,SW12V		A	B	C
	D5302	or RD11ES/B3/-T2	Z DIODE,SW12V		A	B	C
	D5303	MTZJ5.6A-T2	Z DIODE		A	B	C
	D5303	or RD5.6ES/B1/-T2	Z DIODE		A	B	C
	D5305	MTZJ5.6C-T2	Z DIODE,SW5V		A	B	C
	D5305	or RD5.6ES/B3/-T2	Z DIODE,SW5V		A	B	C
	D6002	HZ30-2L-T2	Z.DIODE		A	B	C
	D6002	or HZ30-2LTD	Z DIODE (M)		A	B	C
	D7051	1SS133-T2	SI DIODE,ESD		A	B	C
	D7051	or 1SS270A-T2	SI DIODE,ESD		A	B	C
	R1	NRSA02J-622X	MG RESISTOR	6.2kΩ,1/10W	A	B	C
	R2	NRSA02J-152X	MG RESISTOR	1.5kΩ,1/10W	A	B	C
	R3	NRSA02J-182X	MG RESISTOR	1.8kΩ,1/10W	A	B	C
	R5	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	A	B	C
	R6	NRSA02J-273X	MG RESISTOR	27kΩ,1/10W	A	B	C
	R7	NRSA02J-681X	MG RESISTOR	680Ω,1/10W	A	B	C

MODEL	MARK
HR-S7960EX	A
HR-S7965EF	B
HR-S7965EK	C

#! REF No.	PART No.	PART NAME, DESCRIPTION		A	B	C
R10	QRE141J-103Y	C RESISTOR	10kΩ,1/4W	A	B	C
R21	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	A	B	C
R22	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	A	B	C
R23	NRSA02J-182X	MG RESISTOR	1.8kΩ,1/10W		B	
R25	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W	A	B	C
R26	NRSA02J-682X	MG RESISTOR	6.8kΩ,1/10W	A	B	C
R27	NRSA02J-221X	MG RESISTOR	220Ω,1/10W	A	B	C
R28	NRSA02J-221X	MG RESISTOR	220Ω,1/10W	A	B	C
R29	NRSA02J-561X	MG RESISTOR	560Ω,1/10W	A	B	C
R30	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W		B	
R31	NRSA02J-152X	MG RESISTOR	1.5kΩ,1/10W	A	B	C
R32	NRSA02J-471X	MG RESISTOR	470Ω1/10W	A	B	C
R35	NDC21HJ-470X	C CAPACITOR	47pF,50V	A	B	C
R36	NRSA02J-182X	MG RESISTOR	1.8kΩ,1/10W	A	B	C
R38	NRSA02J-392X	MG RESISTOR	3.9kΩ,1/10W	A	B	C
R40	NRSA02J-473X	MG RESISTOR	47kΩ,1/10W	A	B	C
R41	NRSA02J-104X	MG RESISTOR	100kΩ,1/10W	A	B	C
R42	NRSA02J-681X	MG RESISTOR	680Ω,1/10W	A	B	C
R46	NRSA02J-471X	MG RESISTOR	470Ω1/10W	A	B	C
R48	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	A	B	C
R51	NRSA02J-122X	MG RESISTOR	1.2kΩ,1/10W	A	B	C
R52	NRSA02J-101X	MG RESISTOR	100Ω,1/10W	A		
R52	NQR0360-003X	FERRITE BEADS			B	
R65	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W		B	
R68	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W		B	
R76	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W		B	
R77	NRSA02J-223X	MG RESISTOR	22kΩ,1/10W	A	B	C
R78	NRSA02J-272X	MG RESISTOR	2.7kΩ,1/10W	A	B	C
R84	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W	A	B	C
R88	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	A	B	C
R90	NRSA02J-391X	MG RESISTOR	390Ω,1/10W	A	B	C
R93	NRSA02J-222X	MG RESISTOR	2.2kΩ,1/10W	A	B	C
R104	NRSA02J-682X	MG RESISTOR	6.8kΩ,1/10W	A	B	C
R117	NRSA02J-104X	MG RESISTOR	100kΩ,1/10W	A	B	C
R118	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	A	B	C
R201	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	A	B	C
R202	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W	A	B	C
R208	NRSA02J-222X	MG RESISTOR	2.2kΩ,1/10W	A	B	C
R209	NRSA02J-682X	MG RESISTOR	6.8kΩ,1/10W	A	B	C
R210	NRSA02J-182X	MG RESISTOR	1.8kΩ,1/10W	A	B	C
R211	NRSA02J-562X	MG RESISTOR	5.6kΩ,1/10W	A	B	C
R212	NRSA02J-101X	MG RESISTOR	100Ω,1/10W	A	B	C
R213	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	A	B	C
R216	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W	A	B	C
R224	NRSA02J-101X	MG RESISTOR	100Ω,1/10W	A	B	C
R225	NRSA02J-471X	MG RESISTOR	470Ω1/10W	A	B	C
R226	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	A	B	C
R301	NRSA02J-273X	MG RESISTOR	27kΩ,1/10W		B	
R302	NRSA02J-124X	MG RESISTOR	120kΩ,1/10W		B	
R303	NRSA02J-273X	MG RESISTOR	27kΩ,1/10W		B	
R304	NRSA02J-682X	MG RESISTOR	6.8kΩ,1/10W		B	
R305	NRSA02J-473X	MG RESISTOR	47kΩ,1/10W		B	
R306	NRSA02J-273X	MG RESISTOR	27kΩ,1/10W		B	
R307	NRSA02J-222X	MG RESISTOR	2.2kΩ,1/10W		B	
R308	NRSA02J-222X	MG RESISTOR	2.2kΩ,1/10W		B	
R309	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W		B	
R310	NRSA02J-223X	MG RESISTOR	22kΩ,1/10W		B	
R311	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W		B	
R312	NRSA02J-272X	MG RESISTOR	2.7kΩ,1/10W		B	
R313	NRSA02J-223X	MG RESISTOR	22kΩ,1/10W		B	
R314	NRVA02D-243X	CMF RESISTOR	24kΩ,1/10W		B	
R315	NRSA02J-564X	MG RESISTOR	560kΩ,1/10W		B	
R316	NRSA02J-124X	MG RESISTOR	120kΩ,1/10W		B	
R318	NRSA02J-821X	MG RESISTOR	820Ω,1/10W		B	
R329	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W		B	
R2041	QRE141J-0R0	C RESISTOR	0Ω,1/4W	A	B	C
R2003	NRSA02J-101X	MG RESISTOR	100Ω,1/10W	A	B	C
R2005	NRSA02J-153X	MG RESISTOR	15kΩ,1/10W	A	B	C
R2007	NRSA02J-183X	MG RESISTOR	18kΩ,1/10W	A	B	C
R2008	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W	A	B	C
R2010	NRSA02J-123X	MG RESISTOR	12kΩ,1/10W	A	B	C
R2013	NRSA02J-682X	MG RESISTOR	6.8kΩ,1/10W	A	B	C
R2014	NRSA02J-224X	MG RESISTOR	220kΩ,1/10W	A	B	C
R2015	NRSA02J-181X	MG RESISTOR	180Ω,1/10W	A	B	C
R2016	NRSA02J-393X	MG RESISTOR	39kΩ,1/10W	A	B	C
R2017	NRSA02J-183X	MG RESISTOR	18kΩ,1/10W	A	B	C
R2018	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W	A	B	C
R2019	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W	A	B	C
R2020	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W	A	B	C
R2053	NRSA02J-392X	MG RESISTOR	3.9kΩ,1/10W	A	B	C
R2054	NRSA02J-123X	MG RESISTOR	12kΩ,1/10W	A	B	C
R2055	NRSA02J-3R3X	MG RESISTOR	3.3Ω,1/10W	A	B	C
R2056	QRE141J-820Y	C RESISTOR	82Ω,1/4W	A	B	C
R2057	NRSA02J-473X	MG RESISTOR	47kΩ,1/10W	A	B	C
R2058	NRSA02J-183X	MG RESISTOR	18kΩ,1/10W	A	B	C
R2059	NRSA02J-473X	MG RESISTOR	47kΩ,1/10W	A	B	C
R2060	NRSA02J-183X	MG RESISTOR	18kΩ,1/10W	A	B	C
R2201	NRSA02J-473X	MG RESISTOR	47kΩ,1/10W	A	B	C
R2202	NRSA02J-682X	MG RESISTOR	6.8kΩ,1/10W	A	B	C
R2203	NRSA02J-473X	MG RESISTOR	47kΩ,1/10W	A	B	C
R2204	NRSA02J-682X	MG RESISTOR	6.8kΩ,1/10W	A	B	C
R2205	NRSA02J-473X	MG RESISTOR	47kΩ,1/10W	A	B	C
R2206	NRSA02J-682X	MG RESISTOR	6.8kΩ,1/10W	A	B	C
R2207	NRSA02J-473X	MG RESISTOR	47kΩ,1/10W	A	B	C
R2208	NRSA02J-682X	MG RESISTOR	6.8kΩ,1/10W	A	B	C
R2209	NRSA02J-681X	MG RESISTOR	680Ω,1/10W	A	B	C
R2210	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W	A	B	C
R2211	NRSA02J-272X	MG RESISTOR	2.7kΩ,1/10W	A	B	C
R2212	NRSA02J-272X	MG RESISTOR	2.7kΩ,1/10W	A	B	C
R2213	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W	A	B	C
R2214	NRSA02J-681X	MG RESISTOR	680Ω,1/10W	A	B	C
R2215	NRSA02J-181X	MG RESISTOR	180Ω,1/10W	A	B	C
R2216	NRSA02J-122X	MG RESISTOR	1.2kΩ,1/10W	A		C
R2217	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W	A		C
R2218	NRSA02J-332X	MG RESISTOR	3.3kΩ,1/10W	A	B	C
R2219	NRSA02J-122X	MG RESISTOR	1.2kΩ,1/10W	A	B	C
R2220	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	A	B	C
R2222	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W	A	B	C
R2223	NRSA02J-511X	MG RESISTOR	510Ω,1/10W	A	B	C
R2224	NRSA02J-511X	MG RESISTOR	510Ω,1/10W	A	B	C
R2225	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W	A	B	C
R2226	NRSA02J-273X	MG RESISTOR	27kΩ,1/10W	A	B	C
R2227	NRSA02J-393X	MG RESISTOR	39kΩ,1/10W	A	B	C
R2228	NRSA02J-273X	MG RESISTOR	27kΩ,1/10W	A	B	C
R2229	NRSA02J-393X	MG RESISTOR	39kΩ,1/10W	A	B	C
R2230	NRSA02J-473X	MG RESISTOR	47kΩ,1/10W	A	B	C
R2231	NRSA02J-682X	MG RESISTOR	6.8kΩ,1/10W	A	B	C
R2232	NRSA02J-473X	MG RESISTOR	47kΩ,1/10W	A	B	C
R2233	NRSA02J-682X	MG RESISTOR	6.8kΩ,1/10W	A	B	C
R2234	NRSA02J-101X	MG RESISTOR	100Ω,1/10W	A	B	C
R2235	NRSA02J-681X	MG RESISTOR	680Ω,1/10W	A	B	C
R2236	NRSA02J-272X	MG RESISTOR	2.7kΩ,1/10W	A	B	C

MODEL	MARK
HR-S7960EX	A
HR-S7965EF	B
HR-S7965EK	C

#! REF No.	PART No.	PART NAME, DESCRIPTION		A B C
R2237	NRSA02J-681X	MG RESISTOR	680Ω,1/10W	A B C
R2238	NRSA02J-272X	MG RESISTOR	2.7kΩ,1/10W	A B C
R2251	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W	A B C
R2252	NRSA02J-221X	MG RESISTOR	220Ω,1/10W	A B C
R2253	NRSA02J-101X	MG RESISTOR	100Ω,1/10W	A B C
R2254	QRE141J-103Y	C RESISTOR	10kΩ,1/4W	A B C
R2255	NRSA02J-273X	MG RESISTOR	27kΩ,1/10W	A B C
R2256	NRSA02J-222X	MG RESISTOR	2.2kΩ,1/10W	A B C
R3011	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	A B C
R3012	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	B
R3013	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	A B C
R3014	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	A B C
R3015	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	A B C
R3016	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	A B C
R3017	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	A B C
R3018	NRSA02J-682X	MG RESISTOR	6.8kΩ,1/10W	A B C
R3019	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	A B C
R3020	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	A B C
R3021	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	A B C
R3022	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	A B C
R3025	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W	A B C
R3026	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W	A B C
R3027	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W	A B C
R3029	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	A B C
R3030	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	A B C
R3031	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	A B C
R3033	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	A B C
R3034	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	A B C
R3035	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	A B C
R3036	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W	A B C
R3037	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	A B C
R3038	NRSA02J-152X	MG RESISTOR	1.5kΩ,1/10W	A B C
R3039	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	A B C
R3040	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W	A B C
R3041	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	A B C
R3042	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	A B C
R3044	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	A B C
R3046	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	A B C
R3047	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	A B C
R3048	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	A B C
R3049	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	A B C
R3050	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	A B C
R3051	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	A B C
R3052	NRSA02J-471X	MG RESISTOR	470Ω1/10W	A B C
R3053	NRSA02J-471X	MG RESISTOR	470Ω1/10W	A B C
R3054	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	A B C
R3055	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	A B C
R3056	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	A B C
R3057	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	A B C
R3058	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	A B C
R3059	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	A B C
R3060	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	A B C
R3061	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	A B C
R3062	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W	A B C
R3063	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	A B C
R3066	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W	A B C
R3069	NRSA02J-101X	MG RESISTOR	100Ω,1/10W	A B C
R3071	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W	A B C
R3072	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	A B C
R3073	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	A B C
R3074	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	A B C

#! REF No.	PART No.	PART NAME, DESCRIPTION		A B C
R3075	NRSA02J-471X	MG RESISTOR	470Ω1/10W	A B C
R3076	NRSA02J-471X	MG RESISTOR	470Ω1/10W	A B C
R3077	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	A B C
R3078	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	A B C
R3079	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	A B C
R3080	NRSA02J-101X	MG RESISTOR	100Ω,1/10W	A B C
R3081	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	A B C
R3083	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	A B C
R3085	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	A B C
R3086	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	A B C
R3087	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	A B C
R3088	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	A B C
R3089	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	A B C
R3090	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	A B C
R3091	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	A B C
R3092	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	A B C
R3093	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	A B C
R3094	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	A B C
R3095	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	A B C
R3096	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	A B C
R3097	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	A B C
R3103	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	A B C
R3105	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	A B C
R3106	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	A B C
R3205	QRE141J-181Y	C RESISTOR	180Ω,1/4W	A B C
R3206	NRSA02J-123X	MG RESISTOR	12kΩ,1/10W	A B C
R3207	NRSA02J-183X	MG RESISTOR	18kΩ,1/10W	A B C
R3208	NRSA02J-121X	MG RESISTOR	120Ω,1/10W	A B C
R3209	NRSA02J-183X	MG RESISTOR	18kΩ,1/10W	A B C
R3210	NRSA02J-121X	MG RESISTOR	120Ω,1/10W	A B C
R3211	NRSA02J-183X	MG RESISTOR	18kΩ,1/10W	A B C
R3212	NRSA02J-474X	MG RESISTOR	470kΩ,1/10W	A B C
R3213	NRSA02J-334X	MG RESISTOR	330kΩ,1/10W	A B C
R3214	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W	A B C
R3215	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W	A B C
R3216	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W	A B C
R3217	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W	A B C
R3218	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W	A B C
R3219	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W	A B C
R3220	NRSA02J-104X	MG RESISTOR	100kΩ,1/10W	A B C
R3222	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W	A B C
R3223	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W	A B C
R3224	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W	A B C
R3225	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W	A B C
R3229	NRSA02J-105X	MG RESISTOR	1MΩ,1/10W	A B C
R3230	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W	A B C
R3231	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	A B C
R3234	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W	A B C
R3235	NRSA02J-332X	MG RESISTOR	3.3kΩ,1/10W	A B C
R3236	NRSA02J-332X	MG RESISTOR	3.3kΩ,1/10W	A B C
R3237	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W	A B C
R3238	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W	A B C
R3241	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W	A B C
R3242	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W	A B C
R3252	NRSA02J-153X	MG RESISTOR	15kΩ,1/10W	A B C
R3253	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W	A B C
R4003	NRSA02J-561X	MG RESISTOR	560Ω,1/10W	A B C
R4004	NRSA02J-561X	MG RESISTOR	560Ω,1/10W	A B C
R4005	NRSA02J-562X	MG RESISTOR	5.6kΩ,1/10W	A B C
R4007	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	A B C
R4008	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	A B C

MODEL	MARK
HR-S7960EX	A
HR-S7965EF	B
HR-S7965EK	C

#! REF No.	PART No.	PART NAME, DESCRIPTION		A B C
R4009	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	A B C
R4010	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W	A B C
R4012	NRSA02J-222X	MG RESISTOR	2.2kΩ,1/10W	A B C
R4013	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	A B C
R4015	NRSA02J-562X	MG RESISTOR	5.6kΩ,1/10W	A B C
R4017	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	A B C
R5101	QRE141J-224Y	C RESISTOR	220kΩ,1/4W	A B C
R5102	QRE141J-224Y	C RESISTOR	220kΩ,1/4W	A B C
R5103	QRE141J-683Y	C RESISTOR	68kΩ,1/4W	A B C
R5104	QRG02GJ-683	OMF RESISTOR	68kΩ,2W	A B C
R5106	QRT01DJ-R39X	MF RESISTOR	0.39Ω,1W	A B C
R5107	QRE121J-331Y	C RESISTOR	330Ω,1/2W	A B C
R5108	NRSA02J-152X	MG RESISTOR	1.5kΩ,1/10W	A B C
R5109	QRE141J-561Y	C RESISTOR	560Ω,1/4W	A B C
R5110	NRSA02J-224X	MG RESISTOR	220kΩ,1/10W	A B C
R5111	NRSA02J-391X	MG RESISTOR	390Ω,1/10W	A B C
R5112	NRSA02J-221X	MG RESISTOR	220Ω,1/10W	A B C
R5302	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	A B C
R5303	NRSA02J-122X	MG RESISTOR	1.2kΩ,1/10W	A B C
R5304	NRSA02J-471X	MG RESISTOR	470Ω1/10W	A B C
R5306	NRSA02J-181X	MG RESISTOR	180Ω,1/10W	A B C
R5310	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W	A B C
R5312	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	A B C
R5313	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	A B C
R5319	NRSA02J-221X	MG RESISTOR	220Ω,1/10W	A B C
R5332	QRL02DJ-391X	OMF RESISTOR	390Ω,2W	A B C
R6020	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	A B C
R6021	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	A B C
R6030	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	A B C
R6031	NRSA02J-271X	MG RESISTOR	270Ω,1/10W	A B C
R6032	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W	A C
R6032	NRSA02J-183X	MG RESISTOR	18kΩ,1/10W	B
R6033	NRSA02J-182X	MG RESISTOR	1.8kΩ,1/10W	A C
R6033	NRSA02J-183X	MG RESISTOR	18kΩ,1/10W	B
R6050	NRSA02J-101X	MG RESISTOR	100Ω,1/10W	A C
R6051	QRE141J-101Y	C RESISTOR	100Ω,1/4W	A C
R6052	NRSA02J-101X	MG RESISTOR	100Ω,1/10W	A C
R6056	NRSA02J-101X	MG RESISTOR	100Ω,1/10W	A C
R6080	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	A B C
R7001	NRSA02J-151X	MG RESISTOR	150Ω,1/10W	A B C
R7002	NRSA02J-151X	MG RESISTOR	150Ω,1/10W	A B C
R7003	NRSA02J-151X	MG RESISTOR	150Ω,1/10W	A B C
R7004	NRSA02J-101X	MG RESISTOR	100Ω,1/10W	A B C
R7005	NRSA02J-151X	MG RESISTOR	150Ω,1/10W	A B C
R7006	NRSA02J-151X	MG RESISTOR	150Ω,1/10W	A B C
R7007	NRSA02J-151X	MG RESISTOR	150Ω,1/10W	A B C
R7015	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	A B C
R7020	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W	A B C
R7021	NRSA02J-122X	MG RESISTOR	1.2kΩ,1/10W	A B C
R7022	NRSA02J-182X	MG RESISTOR	1.8kΩ,1/10W	A B C
R7023	NRSA02J-222X	MG RESISTOR	2.2kΩ,1/10W	A B C
R7024	NRSA02J-272X	MG RESISTOR	2.7kΩ,1/10W	A B C
R7025	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W	A B C
R7026	NRSA02J-682X	MG RESISTOR	6.8kΩ,1/10W	A B C
R7030	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W	A B C
R7031	NRSA02J-122X	MG RESISTOR	1.2kΩ,1/10W	A B C
R7032	NRSA02J-182X	MG RESISTOR	1.8kΩ,1/10W	A B C
R7033	NRSA02J-222X	MG RESISTOR	2.2kΩ,1/10W	A B C
R7034	NRSA02J-272X	MG RESISTOR	2.7kΩ,1/10W	A B C
R7160	NRSA02J-101X	MG RESISTOR	100Ω,1/10W	A B C
R7161	NRSA02J-101X	MG RESISTOR	100Ω,1/10W	A B C
R7162	NRSA02J-101X	MG RESISTOR	100Ω,1/10W	A B C
R7163	NRSA02J-750X	MG RESISTOR	75Ω,1/10W	A B C
R7202	NRSA02J-221X	MG RESISTOR	220Ω,1/10W	A B C
R7203	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W	A B C
R7204	QRE121J-100Y	C RESISTOR	10Ω,1/2W	A B C
VR2251	QVP0039-223Z	TRIM RESISTOR		A B C
B5	NRSA02J-0R0X	MG RESISTOR,PB FM BUF	0Ω,1/10W	A B C
B10	NRSA02J-0R0X	MG RESISTOR,C IN(SVHS)	0Ω,1/10W	A B C
B13	QUY160-180Y	IM BUS WIRE,V.REF		A B C
B65	NRSA02J-0R0X	MG RESISTOR,TITLE REC	0Ω,1/10W	A B C
B203	QUY160-100Y	IM BUS WIRE,I2C CLK2		A B C
B204	QUY160-080Y	IM BUS WIRE,I2C DATA2		A B C
B214	NRSA02J-0R0X	MG RESISTOR,RF VIDEO	0Ω,1/10W	A B C
B302	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	B
B2051	QUY160-060Y	IM BUS WIRE		A B C
B2221	QUY160-140Y	IM BUS WIRE,AL5V		A B C
B3001	QUY160-060Y	IM BUS WIRE,ICT		A B C
B5001	QUY160-100Y	IM BUS WIRE,OPT:LF5001		A B C
B5002	QUY160-100Y	IM BUS WIRE,OPT:LF5001		A B C
C1	NCB21HK-103X	C CAPACITOR	0.01μF,50V	A B C
C2	NCB21HK-103X	C CAPACITOR	0.01μF,50V	A B C
C3	NCB21HK-103X	C CAPACITOR	0.01μF,50V	A B C
C4	NCB21HK-103X	C CAPACITOR	0.01μF,50V	A B C
C5	QEKC0JM-476Z	E CAPACITOR	47μF,6.3V	A B C
C6	QDYB1CM-103Y	C CAPACITOR	0.01μF,16V	A B C
C7	NCB21HK-102X	C CAPACITOR	0.001μF,50V	A B C
C8	NCB21EK-104X	C CAPACITOR	0.1μF,25V	A B C
C9	QEKJ1HM-225Z	E CAPACITOR	2.2μF,50V	A B C
C10	NDC21HJ-151X	C CAPACITOR	150pF,50V	A B C
C11	NCB21EK-104X	C CAPACITOR	0.1μF,25V	A B C
C12	NDC21HJ-8R0X	C CAPACITOR	8pF,50V	A B C
C14	NCB21EK-104X	C CAPACITOR	0.1μF,25V	A B C
C15	NCB21HK-103X	C CAPACITOR	0.01μF,50V	A B C
C16	NCB21EK-104X	C CAPACITOR	0.1μF,25V	A B C
C17	QEKJ1HM-335Z	E CAPACITOR	3.3μF,50V	A B C
C19	QEKJ1HM-225Z	E CAPACITOR	2.2μF,50V	A B C
C20	QEPF1HM-105Z	BP E CAPACITOR	1μF,50V	A B C
C21	NCB21EK-104X	C CAPACITOR	0.1μF,25V	A B C
C22	QEKJ0JM-476Z	E CAPACITOR	47μF,6.3V	A B C
C23	NCB21HK-103X	C CAPACITOR	0.01μF,50V	A B C
C24	QCBB1HK-104Y	C CAPACITOR	0.1μF,50V	A B C
C25	NDC21HJ-6R0X	C CAPACITOR	6pF,50V	A B C
C26	NCB21HK-103X	C CAPACITOR	0.01μF,50V	A B C
C27	NCB21HK-223X	C CAPACITOR	0.022μF,50V	A B C
C28	QEKJ1HM-335Z	E CAPACITOR	3.3μF,50V	A B C
C29	NCB21EK-333X	C CAPACITOR	0.033μF,25V	A B C
C30	NCB21CK-474X	C CAPACITOR	0.47μF,16V	A B C
C31	QEKJ0JM-476Z	E CAPACITOR	47μF,6.3V	A B C
C32	NCB21HK-103X	C CAPACITOR	0.01μF,50V	A B C
C33	QEKJ1HM-225Z	E CAPACITOR	2.2μF,50V	A B C
C34	NCB21EK-104X	C CAPACITOR	0.1μF,25V	A B C
C35	NCB21HK-103X	C CAPACITOR	0.01μF,50V	A B C
C36	QEKJ1HM-475Z	E CAPACITOR	4.7μF,25V	A B C
C37	QEKJ1HM-105Z	E CAPACITOR	1μF,50V	A B C
C38	QEKJ0JM-476Z	E CAPACITOR	47μF,6.3V	A B C
C40	QEKJ1EM-106Z	E CAPACITOR	10μF,25V	A B C
C44	NCB21HK-103X	C CAPACITOR	0.01μF,50V	A B C
C45	NCB21HK-103X	C CAPACITOR	0.01μF,50V	A B C
C53	NDC21HJ-101X	C CAPACITOR	100pF,50V	A B C
C59	NCB21HK-103X	C CAPACITOR	0.01μF,50V	A B C
C61	NCB21HK-103X	C CAPACITOR	0.01μF,50V	A B C

MODEL	MARK
HR-S7960EX	A
HR-S7965EF	B
HR-S7965EK	C

#! REF No.	PART No.	PART NAME, DESCRIPTION		A	B	C
C63	NCB21EK-104X	C CAPACITOR	0.1µF,25V	A	B	C
C64	NDC21HJ-220X	C CAPACITOR	22pF,50V	A	B	C
C65	QEKJ1HM-105Z	E CAPACITOR	1µF,50V	A	B	C
C69	NCB21HK-103X	C CAPACITOR	0.01µF,50V	A	B	C
C70	NCB21HK-103X	C CAPACITOR	0.01µF,50V	A	B	C
C72	NDC21HJ-470X	C CAPACITOR	47pF,50V	A	B	C
C73	NDC21HJ-120X	C CAPACITOR	12pF,50V	A	B	C
C78	NCB21HK-103X	C CAPACITOR	0.01µF,50V		B	
C80	NCB21HK-103X	C CAPACITOR	0.01µF,50V	A	B	C
C84	NRSA02J-153X	MG RESISTOR	15kΩ,1/10W	A	B	C
C92	NDC21HJ-330X	C CAPACITOR	33pF,50V	A	B	C
C103	NCB21HK-103X	C CAPACITOR	0.01µF,50V	A	B	C
C106	NCB21HK-821X	C CAPACITOR	820pF,50V	A	B	C
C108	NDC21HJ-680X	C CAPACITOR	68pF,50V	A	B	C
C110	NDC21HJ-820X	C CAPACITOR	82pF,50V	A	B	C
C114	NDC21HJ-181X	C CAPACITOR	180pF,50V	A	B	C
C201	QEKJ0JM-227Z	E CAPACITOR	220µF,6.3V	A	B	C
C204	NCB21HK-103X	C CAPACITOR	0.01µF,50V	A	B	C
C206	NDC21HJ-330X	C CAPACITOR	33pF,50V	A	B	C
C207	NDC21HJ-330X	C CAPACITOR	33pF,50V	A	B	C
C209	NCB21CK-474X	C CAPACITOR	0.47µF,16V	A	B	C
C210	NDC21HJ-101X	C CAPACITOR	100pF,50V	A	B	C
C211	NDC21HJ-101X	C CAPACITOR	100pF,50V	A	B	C
C212	NCB21EK-104X	C CAPACITOR	0.1µF,25V	A	B	C
C213	QERF1EM-475Z	E CAPACITOR	4.7µF,25V	A	B	C
C214	NCB21CK-224X	C CAPACITOR	0.22µF,16V	A	B	C
C215	NCB21CK-224X	C CAPACITOR	0.22µF,16V	A	B	C
C217	NDC21HJ-560X	C CAPACITOR	56pF,50V	A	B	C
C218	QEKJ1HM-105Z	E CAPACITOR	1µF,50V	A	B	C
C222	QEKJ1HM-105Z	E CAPACITOR	1µF,50V	A	B	C
C225	QERF1AM-227Z	E CAPACITOR	220µF,10V	A	B	C
C301	NDC21HJ-151X	C CAPACITOR	150pF,50V		B	
C302	NCB21CK-105X	C CAPACITOR	1µF,16V		B	
C303	NCB21HK-682X	C CAPACITOR	0.0068µF,50V		B	
C304	NCB21HK-682X	C CAPACITOR	0.0068µF,50V		B	
C305	NCB21HK-103X	C CAPACITOR	0.01µF,50V		B	
C306	NCB21CK-105X	C CAPACITOR	1µF,16V		B	
C307	NDC21HJ-151X	C CAPACITOR	150pF,50V		B	
C308	NCB21HK-103X	C CAPACITOR	0.01µF,50V		B	
C309	NCB21EK-104X	C CAPACITOR	0.1µF,25V		B	
C310	NCB21HK-103X	C CAPACITOR	0.01µF,50V		B	
C311	NCB21HK-103X	C CAPACITOR	0.01µF,50V		B	
C312	NCB21HK-102X	C CAPACITOR	0.001µF,50V		B	
C313	NCB21CK-474X	C CAPACITOR	0.47µF,16V		B	
C315	NCB21CK-105X	C CAPACITOR	1µF,16V		B	
C316	NCB21HK-103X	C CAPACITOR	0.01µF,50V		B	
C317	NCB21HK-681X	C CAPACITOR	680pF,50V		B	
C318	NCB21EK-223X	C CAPACITOR	0.022µF,25V		B	
C319	NCB21CK-105X	C CAPACITOR	1µF,16V		B	
C320	NCB21HK-103X	C CAPACITOR	0.01µF,50V		B	
C321	NDC21HG-301X	C CAPACITOR	300pF,50V		B	
C322	NCB21CK-474X	C CAPACITOR	0.47µF,16V		B	
C323	QEKJ0JM-476Z	E CAPACITOR	47µF,6.3V		B	
C324	NDC21HJ-390X	C CAPACITOR	39pF,50V		B	
C2001	QEKJ1HM-475Z	E CAPACITOR	4.7µF,25V	A	B	C
C2002	QEKJ1HM-105Z	E CAPACITOR	1µF,50V	A	B	C
C2003	QEKJ0JM-476Z	E CAPACITOR	47µF,6.3V	A	B	C
C2005	QEKJ1HM-475Z	E CAPACITOR	4.7µF,25V	A	B	C
C2006	NCB21HK-123X	C CAPACITOR	0.012µF,50V	A	B	C
C2007	QEKJ1CM-226Z	E CAPACITOR	22µF,16V	A	B	C
C2008	QEKJ1HM-475Z	E CAPACITOR	4.7µF,25V	A	B	C
C2009	NCB21HK-102X	C CAPACITOR	0.001µF,50V	A	B	C
C2010	NCB21HK-152X	C CAPACITOR	0.0015µF,50V	A	B	C
C2011	QEKJ1HM-475Z	E CAPACITOR	4.7µF,25V	A	B	C
C2012	QEKC1HM-475Z	E CAPACITOR	4.7µF,50V	A	B	C
C2013	NCB21HK-331X	C CAPACITOR	330pF,50V	A	B	C
C2017	NCB21HK-682X	C CAPACITOR	0.0068µF,50V	A	B	C
C2051	NCB21HK-331X	C CAPACITOR	330pF,50V	A	B	C
C2053	NCB21HK-472X	C CAPACITOR	0.0047µF,50V	A	B	C
C2054	NCB21EK-223X	C CAPACITOR	0.022µF,25V	A	B	C
C2055	QEKJ1EM-106Z	E CAPACITOR	10µF,25V	A	B	C
C2061	QFV91HJ-823Z	MF CAPACITOR	0.082µF,50V	A	B	C
C2201	QEKJ1EM-106Z	E CAPACITOR	10µF,25V	A	B	C
C2202	QEKJ1HM-475Z	E CAPACITOR	4.7µF,25V	A	B	C
C2203	QEKJ1HM-475Z	E CAPACITOR	4.7µF,25V	A	B	C
C2204	QEKJ0JM-336Z	E CAPACITOR	33µF,6.3V	A	B	C
C2205	QEKJ1EM-106Z	E CAPACITOR	10µF,25V	A	B	C
C2206	QEKJ1EM-106Z	E CAPACITOR	10µF,25V	A	B	C
C2207	NCB21HK-153X	C CAPACITOR	0.015µF,50V	A	B	C
C2208	NCB21HK-153X	C CAPACITOR	0.015µF,50V	A	B	C
C2209	QERF1CM-106Z	E CAPACITOR	10µF,16V	A	B	C
C2210	QERF1CM-106Z	E CAPACITOR	10µF,16V	A	B	C
C2211	QEKJ0JM-336Z	E CAPACITOR	33µF,6.3V	A	B	C
C2212	QERF0JM-476Z	E CAPACITOR	47µF,6.3V	A	B	C
C2214	QEKJ1EM-106Z	E CAPACITOR	10µF,25V	A	B	C
C2215	QEKJ1EM-106Z	E CAPACITOR	10µF,25V	A	B	C
C2216	QEKJ1CM-476Z	E CAPACITOR	47µF,16V	A	B	C
C2218	QEKJ1EM-106Z	E CAPACITOR	10µF,25V	A		C
C2219	QEKJ1CM-226Z	E CAPACITOR	22µF,16V	A		C
C2220	QEKJ1EM-106Z	E CAPACITOR	10µF,25V	A	B	C
C2221	NCB21EK-223X	C CAPACITOR	0.022µF,25V	A	B	C
C2222	NCB21HK-103X	C CAPACITOR	0.01µF,50V	A	B	C
C2223	NCB21EK-473X	C CAPACITOR	0.047µF,25V	A	B	C
C2224	NCB21EK-473X	C CAPACITOR	0.047µF,25V	A	B	C
C2225	QEKJ1HM-105Z	E CAPACITOR	1µF,50V	A	B	C
C2226	QEKJ1HM-105Z	E CAPACITOR	1µF,50V	A	B	C
C2227	QERF1CM-106Z	E CAPACITOR	10µF,16V	A	B	C
C2230	QEKJ1EM-106Z	E CAPACITOR	10µF,25V	A	B	C
C2231	QEKJ1EM-106Z	E CAPACITOR	10µF,25V	A	B	C
C2251	NCB21HK-103X	C CAPACITOR	0.01µF,50V	A	B	C
C2252	NCB21HK-103X	C CAPACITOR	0.01µF,50V	A	B	C
C2253	NCB21HK-103X	C CAPACITOR	0.01µF,50V	A	B	C
C2254	QEKJ0JM-476Z	E CAPACITOR	47µF,6.3V	A	B	C
C2255	NCB21HK-103X	C CAPACITOR	0.01µF,50V	A	B	C
C2256	NCB21HK-103X	C CAPACITOR	0.01µF,50V	A	B	C
C2257	NCB21HK-103X	C CAPACITOR	0.01µF,50V	A	B	C
C2258	NDC21HJ-181X	C CAPACITOR	180pF,50V	A	B	C
C2259	QEKJ1HM-334Z	E CAPACITOR	0.33µF,50V	A	B	C
C2261	NDC21HJ-101X	C CAPACITOR	100pF,50V	A	B	C
C2262	NDC21HJ-101X	C CAPACITOR	100pF,50V	A	B	C
C3008	NDC21HJ-101X	C CAPACITOR	100pF,50V	A	B	C
C3011	QETL0JM-338	E CAPACITOR	3300µF,6.3V	A	B	C
C3012	QEKJ0JM-476Z	E CAPACITOR	47µF,6.3V	A	B	C
C3014	QERF0JM-476Z	E CAPACITOR	47µF,6.3V	A	B	C
C3015	NCB21EK-104X	C CAPACITOR	0.1µF,25V	A	B	C
C3016	NCB21EK-473X	C CAPACITOR	0.047µF,25V	A	B	C
C3020	NDC21HJ-101X	C CAPACITOR	100pF,50V	A	B	C
C3021	NDC21HJ-101X	C CAPACITOR	100pF,50V	A	B	C
C3022	NCB21EK-104X	C CAPACITOR	0.1µF,25V	A	B	C
C3024	NDC21HJ-220X	C CAPACITOR	22pF,50V	A		
C3024	NDC21HJ-120X	C CAPACITOR	12pF,50V		B	C
C3025	QAT3725-300Z	TRIM CAPACITOR				A

MODEL	MARK
HR-S7960EX	A
HR-S7965EF	B
HR-S7965EK	C

#! REF No.	PART No.	PART NAME, DESCRIPTION		A B C
C3026	NCB21HK-103X	C CAPACITOR	0.01µF,50V	A B C
C3027	QEKJ1EM-106Z	E CAPACITOR	10µF,25V	A B C
C3030	QEKJ0JM-476Z	E CAPACITOR	47µF,6.3V	A B C
C3031	NCB21EK-473X	C CAPACITOR	0.047µF,25V	A B C
C3033	NCB21EK-473X	C CAPACITOR	0.047µF,25V	A B C
C3036	NDC21HJ-180X	C CAPACITOR	18pF,50V	A B C
C3037	NDC21HJ-120X	C CAPACITOR	12pF,50V	A B C
C3040	NCB21HK-103X	C CAPACITOR	0.01µF,50V	A B C
C3041	NDC21HJ-150X	C CAPACITOR	15pF,50V	B C
C3050	NCF21EZ-104X	C CAPACITOR	0.1µF,25V	A B C
C3071	QEKJ1CM-336Z	E CAPACITOR	33µF,16V	A B C
C4002	NCB21EK-104X	C CAPACITOR	0.1µF,25V	A B C
C4004	QEKJ1AM-226Z	E CAPACITOR	22µF,10V	A B C
C4005	NCB21HK-222X	C CAPACITOR	0.0022µF,50V	A B C
C4006	QEKJ0JM-476Z	E CAPACITOR	47µF,6.3V	A B C
C4008	NCB21AK-105X	C CAPACITOR	1µF,10V	A B C
C4009	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	A B C
C4010	NCB21EK-223X	C CAPACITOR	0.022µF,25V	A B C
C4011	NCB21EK-104X	C CAPACITOR	0.1µF,25V	A B C
C4012	QERF1HM-105Z	E CAPACITOR	1µF,50V	A B C
C4014	NDC21HJ-101X	C CAPACITOR	100pF,50V	A B C
C4015	NCB21HK-102X	C CAPACITOR	0.001µF,50V	A B C
C4031	QEKJ1CM-336Z	E CAPACITOR	33µF,16V	A B C
⚠ C5001	QFZ9072-473	MM CAPACITOR	0.047µF,125V	A B C
⚠ C5004	QCZ9071-222	C CAPACITOR	0.0022µF,250V	A B C
C5006	QEZ0375-686	E CAPACITOR	68µF,400V	A B C
C5101	QCZ0212-472	C CAPACITOR	0.0047µF,1kV	A B C
C5102	QCZ0302-330Z	C CAPACITOR	33pF,1kV	A B C
C5104	QEKJ1HM-105Z	E CAPACITOR	1µF,50V	A B C
C5105	QFN31HJ-153Z	M CAPACITOR	0.015µF,50V	A B C
C5106	QCBB1HJ-271Y	C CAPACITOR	270pF,50V	A B C
C5107	QFV91HJ-104Z	MF CAPACITOR	0.1µF,50V	A B C
C5202	QETN1CM-108Z	E CAPACITOR	1000µF,16V	A B C
C5203	QEMT1AM-128	E CAPACITOR	1200µF,10V	A B C
C5204	QETJ2AM-475Z	E CAPACITOR	4.7µF,10V	A B C
C5206	QEKJ1CM-476Z	E CAPACITOR	47µF,16V	A B C
C5207	QEKJ1CM-107Z	E CAPACITOR	100µF,16V	A B C
C5301	QEKJ1CM-107Z	E CAPACITOR	100µF,16V	A B C
C5303	QEKJ1CM-107Z	E CAPACITOR	100µF,16V	A B C
C5305	QFVF1HJ-274Z	MF CAPACITOR	0.27µF,50V	A B C
C5307	QEKJ1CM-476Z	E CAPACITOR	47µF,16V	A B C
C5308	QEKJ1CM-107Z	E CAPACITOR	100µF,16V	A B C
C6008	NCB21HK-103X	C CAPACITOR	0.01µF,50V	B
C6013	NCB21HK-103X	C CAPACITOR	0.01µF,50V	A B C
C6032	NCB21EK-473X	C CAPACITOR	0.047µF,25V	A C
C6037	QEKJ1EM-106Z	E CAPACITOR	10µF,25V	A B C
C6055	NDC21HJ-220X	C CAPACITOR	22pF,50V	A C
C6056	NDC21HJ-470X	C CAPACITOR	47pF,50V	A C
C6501	QEKJ1EM-106Z	E CAPACITOR	10µF,25V	A C
C6501	QEKJ0JM-227Z	E CAPACITOR	220µF,6.3V	B
C6502	NCB21HK-103X	C CAPACITOR	0.01µF,50V	A B C
C7011	QEKJ0JM-476Z	E CAPACITOR	47µF,6.3V	A B C
C7165	NCB21HK-681X	C CAPACITOR	680pF,50V	A B C
C7167	NCB21HK-681X	C CAPACITOR	680pF,50V	A B C
C7202	QETJ0JM-477Z	E CAPACITOR	470µF,6.3V	A B C
L1	QQL29BJ-100Z	P COIL	10µH	A B C
L2	QQL071J-121Y	INDUCTOR	120µH	A B C
L3	QQL29BJ-100Z	P COIL	10µH	A B C
L4	QQL29BJ-100Z	P COIL	10µH	A B C
L5	QQR0521-012Z	NOISE FILTER		A B C
L12	QQR0967-001	CHOKE COIL	12µH	A B C

#! REF No.	PART No.	PART NAME, DESCRIPTION		A B C
L13	QQL071J-330Y	INDUCTOR	33µH	A B C
L15	QQL29BJ-100Z	P COIL	10µH	A B C
L18	QQL071J-220Y	INDUCTOR	22µH	A B C
L19	QQL071J-120Y	INDUCTOR	12µH	A B C
L20	QUY153-050Y	IM BUS WIRE		A B C
L22	QQL231J-1R0Y	INDUCTOR	1.0µH	A B C
L24	QQL071J-270Y	INDUCTOR	27µH	A B C
L27	QQL071J-330Y	INDUCTOR	33µH	A B C
L28	QQL071J-680Y	INDUCTOR	68µH	A B C
L201	QQL29BK-1R0Z	P COIL	1.0µH	A B C
L202	QUY153-050Y	IM BUS WIRE		A B C
L203	QQL29BJ-220Z	P COIL	22µH	A B C
L204	QQL29BJ-100Z	P COIL	10µH	A B C
L206	QQL071J-220Y	INDUCTOR	22µH	A B C
L301	QQL29BJ-100Z	P COIL	10µH	B
L302	QQL231J-6R8Y	INDUCTOR	6.8µH	B
L303	QQL231J-270Y	INDUCTOR	27µH	B
L304	QQL29BJ-101Z	P COIL	100µH	B
L2001	QUY153-050Y	IM BUS WIRE		A B C
L2201	QUY153-050Y	IM BUS WIRE		A B C
L2251	QQL29BJ-100Z	P COIL	10µH	A B C
L2252	QQL29BJ-151Z	P COIL	150µH	A B C
L4001	QUY153-050Y	IM BUS WIRE		A B C
L5201	PELN1184	CHOKE COIL	33µH	A B C
L5202	PELN1184	CHOKE COIL	33µH	A B C
L6001	QQL29BJ-100Z	P COIL	10µH	A B C
L6002	QQL29BJ-100Z	P COIL	10µH	A B C
L6501	QUY153-050Y	IM BUS WIRE		A B C
L7201	QQL29BJ-100Z	P COIL	10µH	A B C
⚠ CP3001	QMFZ050-1R5X-E	FUSE	T1.5A,125V	A B C
⚠ CP4001	QMFZ050-1R5X-E	FUSE	T1.5A,125V	A B C
DI7001	LTG-0126M-03J	LED		A B C
FC5001	QNG0006-001Z	FUSE CLIP,FOR F5001		A B C
FC5002	QNG0006-001Z	FUSE CLIP,FOR F5001		A B C
J7105	QNN0381-002	PIN JACK,NI YWR		A B C
JS3001	QSW0954-002	ROTARY ENCODER,R.ENCODER		A B C
K2001	NRSA02J-0R0X	MG RESISTOR,SET1	0Ω,1/10W	A B C
K2002	NRSA02J-0R0X	MG RESISTOR,SET1	0Ω,1/10W	A B C
K2003	NRSA02J-0R0X	MG RESISTOR,SET1	0Ω,1/10W	A B C
K2004	NRSA02J-0R0X	MG RESISTOR,SET1	0Ω,1/10W	A B C
K2251	NQR0007-001X	FERRITE BEADS		A B C
K2252	NQR0007-001X	FERRITE BEADS		A B C
K2253	NQR0007-001X	FERRITE BEADS		A B C
K5101	QQR0678-001Z	FERRITE BEADS		A B C
K5102	QUY153-050Y	IM BUS WIRE		A B C
⚠ LF5002	QQR0978-001	LINE FILTER		A B C
PC3001	RPI-304J	IC(PHOTO SENSOR),SP REEL		A B C
PC3002	RPI-304J	IC(PHOTO SENSOR),TU REEL		A B C
⚠ PC5101	PC123Y22	IC(PHOTO COUPLER)		A B C
T2051	PELN0832	OSC TRANS		A B C
⚠ T5001	QQS0083-001	SW TRANSF		A B C
TP106	QUY160-100Y	IM BUS WIRE,PB FM		A B C
TP111	QUY160-100Y	IM BUS WIRE,D.FF		A B C
TP2253	QUY160-100Y	IM BUS WIRE,A.PB FM		A B C
TP2254	QUY160-100Y	IM BUS WIRE,A.REC.FM		A B C
TP4001	QUY160-100Y	IM BUS WIRE,CTL.P		A B C
TU6001	QAU0261-002	TUNER,15ALPS3SYS		A C
TU6001	QAU0210-001	TUNER,LG BG/L		B
X1	QAX0576-001Z	CRYSTAL,PAL		A B C
X2	QCBB1HK-103Y	C CAPACITOR,NTSC	0.01µF,50V	A B C
X3001	QAX0445-001	CRYSTAL,32K ADJ		A C

MODEL	MARK
HR-S7960EX	A
HR-S7965EF	B
HR-S7965EK	C

#!	REF No.	PART No.	PART NAME, DESCRIPTION		A	B	C
	X3001	QAX0444-001	CRYSTAL,32K ADJ			B	
	X3002	QAX0527-001	CRYSTAL,10M		A	B	C
	S3001	QSW0602-004	PUSH SWITCH,REC.SAFETY		A	B	C
	S3002	QSW0602-004	PUSH SWITCH,S.CASS		A	B	C
	S7002	QSW0456-002Z	TACT SWITCH,POWER		A	B	C
	S7003	QSW0456-002Z	TACT SWITCH,TIMER		A	B	C
	S7004	QSW0456-002Z	TACT SWITCH,REC LINK		A	B	C
	S7006	QSW0456-002Z	TACT SWITCH,SVHS ET		A	B	C
	S7010	QSW0456-002Z	TACT SWITCH,REC		A	B	C
	S7011	QSW0456-002Z	TACT SWITCH,PAUSE		A	B	C
	S7013	QSW0456-002Z	TACT SWITCH,STOP/EJ		A	B	C
	S7015	QSW0456-002Z	TACT SWITCH,PLAY		A	B	C
	S7017	QSW0456-002Z	TACT SWITCH,SP/LP/EP		A	B	C
	SD1	LP21105-001A	SHIELD CASE,FOR P/R		A	B	C
	ET1	PQ21623-2-5	EARTH PLATE(RF),FOR TUNER		A	B	C
	HS1	LP40090-001A	HEAT SINK,FOR Q5101		A	B	C
	OT1	QYTDSF3010Z	TAP SCREW,X2,FOR TERM_B		A	B	C
	OT2	PU59915-110	#500SPACER0.014,R2041		A	B	C
	OT3	QYTDST3006Z	TAP SCREW,FOR Q5101		A	B	C
	OT4	PM30130-001	SPACER,FOR WR6501			B	
	WR6501	QUB321-16A4A4	SIN TWIST WIRE,W421-D2			B	
	CN1	QGF1201C2-09	FPC CONNECTOR,DRUM 1-9		A	B	C
	CN901	QGB2024K1-10S	B TO B CONNECTOR,TERMINAL		A	B	C
	CN902	QGB2024K1-12S	B TO B CONNECTOR,TERMINAL		A	B	C
	CN903	QGB2024K1-10S	B TO B CONNECTOR,TERMINAL		A	B	C
	CN904	QGB2024K1-11S	B TO B CONNECTOR,TERMINAL		A	B	C
	CN905	QGB2024K1-09S	B TO B CONNECTOR,TERMINAL		A	B	C
	CN2001	QGF1207C1-06	FPC CONNECTOR,A/C HEAD		A	B	C
	CN2002	QGB2532J1-02	B TO B CONNECTOR,FE HEAD		A	B	C
	CN3001	QGB2032M4-12	B TO B CONNECTOR,CAP+DRUM M		A	B	C
⚠	CN5001	QGA7901C3-02	W TO B CONNECTOR,POWER CORD		A	B	C
	CN7002	QGF1207C1-04	FPC CONNECTOR,A.JOG V16		A	B	C
⚠	F5001	QMF51E2-2R0-J1	FUSE	T2.0A,AC250V	A	B	C

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3D DIGITAL/2M BOARD ASSEMBLY<05>

	PW1	LPA10105-09A	3D D/2M BOARD ASSY		A	B	C
	IC1401	JCP8026	IC		A	B	C
⚠	Q1401	2SC1317/RS/-T	TRANSISTOR		A	B	C
	Q1402	2SA1576A/QR/-X	TRANSISTOR		A	B	C
	Q1402 or	2PA1576/R/-X	TRANSISTOR		A	B	C
	Q1406	2SA1576A/QR/-X	TRANSISTOR		A	B	C
	Q1406 or	2PA1576/R/-X	TRANSISTOR		A	B	C
	Q1408	2SC4081/S/-X	TRANSISTOR		A	B	C
	Q1410	2SC4081/QRS/-X	TRANSISTOR		A	B	C
	Q1410 or	2PC4081/R/-X	TRANSISTOR		A	B	C
	Q1412	2SA1576A/QR/-X	TRANSISTOR		A	B	C
	Q1412 or	2PA1576/R/-X	TRANSISTOR		A	B	C
	Q1418	2SA1576A/QR/-X	TRANSISTOR		A	B	C
	Q1418 or	2PA1576/R/-X	TRANSISTOR		A	B	C
	Q1419	DTC124TUA-X	DIGI TRANSISTOR		A	B	C
	D1401	RD4.3ES/B3/-T2	Z DIODE		A	B	C
	D1401 or	MTZJ4.3B-T2	Z DIODE		A	B	C
	D1402	1SS133-T2	SI DIODE		A	B	C
	D1402 or	1N4148M-T2	DIODE		A	B	C
	R1401	NRSA02J-121X	MG RESISTOR	120Ω,1/10W	A	B	C
	R1402	NRSA02J-101X	MG RESISTOR	100Ω,1/10W	A	B	C
	R1404	NRSA02J-272X	MG RESISTOR	2.7kΩ,1/10W	A	B	C
	R1406	NRSA02J-221X	MG RESISTOR	220Ω,1/10W	A	B	C

#!	REF No.	PART No.	PART NAME, DESCRIPTION		A	B	C
	R1410	NRSA02J-391X	MG RESISTOR	390Ω,1/10W	A	B	C
	R1411	NRSA02J-152X	MG RESISTOR	1.5kΩ,1/10W	A	B	C
	R1413	NRSA02J-221X	MG RESISTOR	220Ω,1/10W	A	B	C
	R1415	NRVA02D-221X	CMF RESISTOR	220Ω,1/10W	A	B	C
	R1416	NRSA02J-104X	MG RESISTOR	100kΩ,1/10W	A	B	C
	R1417	NRSA02J-101X	MG RESISTOR	100Ω,1/10W	A	B	C
	R1418	NRSA02J-471X	MG RESISTOR	470Ω1/10W	A	B	C
	R1421	NRSA02J-331X	MG RESISTOR	330Ω,1/10W	A	B	C
	R1426	NRSA02J-561X	MG RESISTOR	560Ω,1/10W	A	B	C
	R1427	NRSA02J-333X	MG RESISTOR	33kΩ,1/10W	A	B	C
	R1428	NRSA02J-393X	MG RESISTOR	39kΩ,1/10W	A	B	C
	R1429	NRSA02J-182X	MG RESISTOR	1.8kΩ,1/10W	A	B	C
	R1430	NRSA02J-222X	MG RESISTOR	2.2kΩ,1/10W	A	B	C
	R1431	NRSA02J-821X	MG RESISTOR	820Ω,1/10W	A	B	C
	R1433	NRSA02J-510X	MG RESISTOR	51Ω,1/10W	A	B	C
	R1434	NRVA02D-153X	CMF RESISTOR	15Ω,1/10W	A	B	C
	R1435	NRVA02D-473X	CMF RESISTOR	47kΩ,1/10W	A	B	C
	R1436	NRVA02D-393X	CMF RESISTOR	39Ω,1/10W	A	B	C
	R1437	NRSA02J-392X	MG RESISTOR	3.9kΩ,1/10W	A	B	C
	R1438	NRSA02J-473X	MG RESISTOR	47kΩ,1/10W	A	B	C
	R1439	NRSA02J-273X	MG RESISTOR	27kΩ,1/10W	A	B	C
	R1440	NRSA02J-473X	MG RESISTOR	47kΩ,1/10W	A	B	C
	R1445	NRVA02D-393X	CMF RESISTOR	39Ω,1/10W	A	B	C
	R1446	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	A	B	C
	R1447	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	A	B	C
	R1448	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	A	B	C
	R1449	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	A	B	C
	R1450	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	A	B	C
	R1452	NRSA02J-471X	MG RESISTOR	470Ω1/10W	A	B	C
	R1453	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	A	B	C
	R1455	NRSA02J-681X	MG RESISTOR	680Ω,1/10W	A	B	C
	R1459	NRSA02J-681X	MG RESISTOR	680Ω,1/10W	A	B	C
	R1460	NRSA02J-273X	MG RESISTOR	27kΩ,1/10W	A	B	C
	VR1401	QUY153-050Y	IM BUS WIRE				A B C
	B1401	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	A	B	C
	B1412	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	A	B	C
	C1401	QEKJ1CM-336Z	E CAPACITOR	33μF,16V	A	B	C
	C1403	QEKJ0JM-337Z	E CAPACITOR	330μF,6.3V	A	B	C
	C1404	NCF21EZ-104X	C CAPACITOR	0.1μF,25V	A	B	C
	C1405	NCF21EZ-104X	C CAPACITOR	0.1μF,25V	A	B	C
	C1406	NCB21HK-103X	C CAPACITOR	0.01μF,50V	A	B	C
	C1407	NDC21HJ-680X	C CAPACITOR	68pF,50V	A	B	C
	C1408	NDC21HJ-330X	C CAPACITOR	33pF,50V	A	B	C
	C1410	QEKJ1HM-475Z	E CAPACITOR	4.7μF,25V	A	B	C
	C1411	NCF21EZ-104X	C CAPACITOR	0.1μF,25V	A	B	C
	C1412	NDC21HJ-680X	C CAPACITOR	68pF,50V	A	B	C
	C1413	NDC21HJ-330X	C CAPACITOR	33pF,50V	A	B	C
	C1415	NCF21EZ-104X	C CAPACITOR	0.1μF,25V	A	B	C
	C1416	QEKJ1EM-106Z	E CAPACITOR	10μF,25V	A	B	C
	C1417	NCF21EZ-104X	C CAPACITOR	0.1μF,25V	A	B	C
	C1418	NCB21HK-103X	C CAPACITOR	0.01μF,50V	A	B	C
	C1421	NDC21HJ-330X	C CAPACITOR	33pF,50V	A	B	C
	C1422	NDC21HJ-680X	C CAPACITOR	68pF,50V	A	B	C
	C1423	NCF21EZ-104X	C CAPACITOR	0.1μF,25V	A	B	C
	C1424	NCB21HK-103X	C CAPACITOR	0.01μF,50V	A	B	C
	C1425	NCB21HK-103X	C CAPACITOR	0.01μF,50V	A	B	C
	C1426	NDC21HJ-390X	C CAPACITOR	39pF,50V	A	B	C
	C1428	NDC21HJ-220X	C CAPACITOR	22pF,50V	A	B	C
	C1429	QEKJ0JM-337Z	E CAPACITOR	330μF,6.3V	A	B	C
	C1430	NCF21EZ-104X	C CAPACITOR	0.1μF,25V	A	B	C
	C1432	NCF21CZ-105X	C CAPACITOR	1μF,16V	A	B	C

MODEL	MARK
HR-S7960EX	A
HR-S7965EF	B
HR-S7965EK	C

#!	REF No.	PART No.	PART NAME, DESCRIPTION		A	B	C
	C1433	NCF21EZ-104X	C CAPACITOR	0.1µF,25V	A	B	C
	C1435	NCF21EZ-104X	C CAPACITOR	0.1µF,25V	A	B	C
	C1436	NCF21EZ-104X	C CAPACITOR	0.1µF,25V	A	B	C
	C1437	NCF21EZ-104X	C CAPACITOR	0.1µF,25V	A	B	C
	C1438	NCF21EZ-104X	C CAPACITOR	0.1µF,25V	A	B	C
	C1439	NCB21HK-103X	C CAPACITOR	0.01µF,50V	A	B	C
	C1440	NCF21EZ-104X	C CAPACITOR	0.1µF,25V	A	B	C
	C1441	NCF21EZ-104X	C CAPACITOR	0.1µF,25V	A	B	C
	C1442	NCF21CZ-105X	C CAPACITOR	1µF,16V	A	B	C
	C1444	NCF21EZ-104X	C CAPACITOR	0.1µF,25V	A	B	C
	C1445	NCF21EZ-104X	C CAPACITOR	0.1µF,25V	A	B	C
	C1446	QEKJ0JM-476Z	E CAPACITOR	47µF,6.3V	A	B	C
	C1447	NCF21EZ-104X	C CAPACITOR	0.1µF,25V	A	B	C
	C1448	QEKJ0JM-476Z	E CAPACITOR	47µF,6.3V	A	B	C
	C1449	NCF21EZ-104X	C CAPACITOR	0.1µF,25V	A	B	C
	C1450	NCF21EZ-104X	C CAPACITOR	0.1µF,25V	A	B	C
	C1451	QEKJ1HM-475Z	E CAPACITOR	4.7µF,25V	A	B	C
	C1452	NCF21EZ-104X	C CAPACITOR	0.1µF,25V	A	B	C
	C1453	NCF21EZ-104X	C CAPACITOR	0.1µF,25V	A	B	C
	C1454	NCF21EZ-104X	C CAPACITOR	0.1µF,25V	A	B	C
	C1463	QEKJ0JM-336Z	E CAPACITOR	33µF,6.3V	A	B	C
	C1468	NDC21HJ-101X	C CAPACITOR	100pF,50V	A	B	C
	C1470	NDC21HJ-330X	C CAPACITOR	33pF,50V	A	B	C
	C1471	NCF21EZ-104X	C CAPACITOR	0.1µF,25V	A	B	C
	C1472	NCF21EZ-104X	C CAPACITOR	0.1µF,25V	A	B	C
	C1473	NCF21EZ-104X	C CAPACITOR	0.1µF,25V	A	B	C
	L1401	QUY153-050Y	IM BUS WIRE		A	B	C
	L1402	QQL071J-6R8Y	INDUCTOR	6.8µH	A	B	C
	L1403	QQL071J-6R8Y	INDUCTOR	6.8µH	A	B	C
	L1404	QQL071J-6R8Y	INDUCTOR	6.8µH	A	B	C
	L1405	QQL29BJ-100Z	P COIL	10µH	A	B	C
	L1406	QQL071J-330Y	INDUCTOR	33µH	A	B	C
	L1407	QQL29BJ-100Z	P COIL	10µH	A	B	C
	L1409	QQL071J-1R0Y	INDUCTOR	1.0µH	A	B	C
⚠	LC1401	QQL29BJ-101Z	P COIL,M/I	100µH	A	B	C
	LC1402	QQR0521-006Z	NOISE FILTER		A	B	C
	SD1	LP30706-001D	S.FRAME(S-VHS)		A	B	C
	SD2	LP30684-001A	S.CASE(S-VHS)		A	B	C
	CN1401	QGG2502K1-17	HEADER PIN		A	B	C

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TERMINAL BOARD ASSEMBLY<06>

PW1	LPA10138-14A	TERM BOARD ASSY,EX/EK		A		C
PW1	LPA10138-13A	TERM BOARD ASSY,EF			B	
IC501	JCP8018	IC		A	B	C
IC501	or JCP8028	IC		A	B	C
IC501	or JCP8028-01	IC		A	B	C
IC501	or JCP8038	IC		A	B	C
IC502	VC2076DP	IC		A	B	C
IC901	BH7636S	IC,CH+		A	B	C
Q901	UN5211-X	DIGI TRANSISTOR		A	B	C
Q901	or DTC114EUA-X	DIGI TRANSISTOR		A	B	C
Q901	or RN1302-X	DIGI TRANSISTOR		A	B	C
Q901	or PDTC114EU-X	DIGI TRANSISTOR		A	B	C
Q902	2SB1218A/QR/-X	TRANSISTOR		A	B	C
Q902	or 2SA1576A/QR/-X	TRANSISTOR		A	B	C
Q902	or 2PA1576/R/-X	TRANSISTOR		A	B	C
Q903	2SB1218A/QR/-X	TRANSISTOR,S OUT		A	B	C
Q903	or 2SA1576A/QR/-X	TRANSISTOR,S OUT		A	B	C
Q903	or 2PA1576/R/-X	TRANSISTOR,S OUT		A	B	C
Q904	2SB1218A/QR/-X	TRANSISTOR,S OUT		A	B	C
Q904	or 2SA1576A/QR/-X	TRANSISTOR,S OUT		A	B	C
Q904	or 2PA1576/R/-X	TRANSISTOR,S OUT		A	B	C
Q905	UN521E-X	DIGI TRANSISTOR		A	B	C
Q905	or DTC144WUA-X	DIGI TRANSISTOR		A	B	C
Q905	or RN1309-X	DIGI TRANSISTOR		A	B	C
Q905	or PDTC144WU-X	DIGI TRANSISTOR		A	B	C
Q906	2SD1819A/QRS/-X	TRANSISTOR		A	B	C
Q906	or 2SC4081/QRS/-X	TRANSISTOR		A	B	C
Q906	or 2PC4081/R/-X	TRANSISTOR		A	B	C
Q907	2SD1819A/QRS/-X	TRANSISTOR		A	B	C
Q907	or 2SC4081/QRS/-X	TRANSISTOR		A	B	C
Q907	or 2PC4081/R/-X	TRANSISTOR		A	B	C
Q908	2SD1819A/QRS/-X	TRANSISTOR		A	B	C
Q908	or 2SC4081/QRS/-X	TRANSISTOR		A	B	C
Q908	or 2PC4081/R/-X	TRANSISTOR		A	B	C
Q909	2SB1218A/QR/-X	TRANSISTOR		A	B	C
Q909	or 2SA1576A/QR/-X	TRANSISTOR		A	B	C
Q909	or 2PA1576/R/-X	TRANSISTOR		A	B	C
Q910	2SB1218A/QR/-X	TRANSISTOR		A	B	C
Q910	or 2SA1576A/QR/-X	TRANSISTOR		A	B	C
Q910	or 2PA1576/R/-X	TRANSISTOR		A	B	C
Q911	UN521E-X	DIGI TRANSISTOR		A	B	C
Q911	or DTC144WUA-X	DIGI TRANSISTOR		A	B	C
Q911	or RN1309-X	DIGI TRANSISTOR		A	B	C
Q911	or PDTC144WU-X	DIGI TRANSISTOR		A	B	C
Q912	UN5215-X	DIGI TRANSISTOR		A	B	C
Q912	or DTC114TUA-X	DIGI TRANSISTOR		A	B	C
Q912	or RN1311-X	D TRANSISTOR		A	B	C
Q912	or PDTC114TU-X	DIGI TRANSISTOR		A	B	C
R503	NRSA02J-221X	MG RESISTOR	220Ω,1/10W	A	B	C
R504	NRSA02J-332X	MG RESISTOR	3.3kΩ,1/10W	A	B	C
R505	NRSA02J-392X	MG RESISTOR	3.9kΩ,1/10W	A	B	C
R506	NRSA02J-391X	MG RESISTOR	390Ω,1/10W	A	B	C
R507	NRSA02J-122X	MG RESISTOR	1.2kΩ,1/10W	A	B	C
R508	NRSA02J-151X	MG RESISTOR	150Ω,1/10W	A	B	C
R509	NRSA02J-162X	MG RESISTOR	1.6kΩ,1/10W	A	B	C
R510	NRVA02D-102X	CMF RESISTOR	1kΩ,1/10W	A	B	C
R511	NRVA02D-471X	CMF RESISTOR	470Ω,1/10W	A	B	C
R512	NRVA02D-102X	CMF RESISTOR	1kΩ,1/10W	A	B	C
R513	NRVA02D-152X	CMF RESISTOR	1.5kΩ,1/10W	A	B	C
R514	NRVA02D-332X	CMF RESISTOR	3.3kΩ,1/10W	A	B	C
R515	NRVA02D-332X	CMF RESISTOR	3.3kΩ,1/10W	A	B	C
R516	QUY160-100Y	IM BUS WIRE		A	B	C
R517	QUY160-100Y	IM BUS WIRE		A	B	C
R525	QRE141J-125Y	C RESISTOR	1.2MΩ,1/4W	A	B	C
R527	NRSA02J-332X	MG RESISTOR	3.3kΩ,1/10W	A		C
R531	NRSA02J-101X	MG RESISTOR	100Ω,1/10W	A	B	C
R532	NRSA02J-101X	MG RESISTOR	100Ω,1/10W	A	B	C
R533	NRSA02J-101X	MG RESISTOR	100Ω,1/10W	A	B	C
R534	NRSA02J-101X	MG RESISTOR	100Ω,1/10W	A	B	C
R535	NRSA02J-101X	MG RESISTOR	100Ω,1/10W	A	B	C
R536	NRSA02J-101X	MG RESISTOR	100Ω,1/10W	A	B	C
R901	NRSA02J-750X	MG RESISTOR	75Ω,1/10W	A	B	C
R902	NRSA02J-750X	MG RESISTOR	75Ω,1/10W	A	B	C
R903	QRE141J-680Y	C RESISTOR	68Ω,1/4W	A	B	C
R904	NQL402M-4R7X	INDUCTOR	4.7µH	A	B	C
R905	NQL402M-4R7X	INDUCTOR	4.7µH	A	B	C
R906	QQL231J-100Y	INDUCTOR	10µH	A	B	C
R907	QQL231J-100Y	INDUCTOR	10µH	A	B	C

MODEL	MARK
HR-S7960EX	A
HR-S7965EF	B
HR-S7965EK	C

#! REF No.	PART No.	PART NAME, DESCRIPTION		A	B	C
R908	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	A	B	C
R909	NRSA02J-750X	MG RESISTOR	75Ω,1/10W	A	B	C
R910	NRSA02J-750X	MG RESISTOR	75Ω,1/10W	A	B	C
R911	NRSA02J-750X	MG RESISTOR	75Ω,1/10W	A	B	C
R912	NRSA02J-101X	MG RESISTOR	100Ω,1/10W	A	B	C
R913	NRSA02J-101X	MG RESISTOR	100Ω,1/10W	A	B	C
R914	QQL231J-100Y	INDUCTOR	10µH	A	B	C
R915	QQL231J-100Y	INDUCTOR	10µH	A	B	C
R916	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	A	B	C
R917	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	A	B	C
R918	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	A	B	C
R919	QRE141J-101Y	C RESISTOR	100Ω,1/4W	A	B	C
R920	QRE141J-101Y	C RESISTOR	100Ω,1/4W	A	B	C
R921	QRE121J-391Y	C RESISTOR	390Ω,1/2W	A	B	C
R922	QRE121J-391Y	C RESISTOR	390Ω,1/2W	A	B	C
R923	NRSA02J-750X	MG RESISTOR	75Ω,1/10W	A	B	C
R924	NRSA02J-750X	MG RESISTOR	75Ω,1/10W	A	B	C
R929	NRSA02J-820X	MG RESISTOR	82Ω,1/10W	A	B	C
R930	NRSA02J-750X	MG RESISTOR	75Ω,1/10W	A	B	C
R931	NRSA02J-101X	MG RESISTOR	100Ω,1/10W	A	B	C
R932	NRSA02J-511X	MG RESISTOR	510Ω,1/10W	A	B	C
R933	NRSA02J-471X	MG RESISTOR	470Ω1/10W	A	B	C
R934	QRE141J-101Y	C RESISTOR	100Ω,1/4W	A	B	C
R935	QRE141J-101Y	C RESISTOR	100Ω,1/4W	A	B	C
R936	QRE141J-101Y	C RESISTOR	100Ω,1/4W	A	B	C
R937	QRE141J-101Y	C RESISTOR	100Ω,1/4W	A	B	C
R938	QRE141J-101Y	C RESISTOR	100Ω,1/4W	A	B	C
R939	QRE141J-101Y	C RESISTOR	100Ω,1/4W	A	B	C
R940	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W	A	B	C
R941	NRSA02J-332X	MG RESISTOR	3.3kΩ,1/10W	A	B	C
R942	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W	A	B	C
R943	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	A	B	C
R944	NRSA02J-272X	MG RESISTOR	2.7kΩ,1/10W	A	B	C
R945	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	A	B	C
R946	NRSA02J-561X	MG RESISTOR	560Ω,1/10W	A	B	C
R947	NRSA02J-682X	MG RESISTOR	6.8kΩ,1/10W	A	B	C
R949	QRE121J-331Y	C RESISTOR	330Ω,1/2W	A	B	C
R951	NRSA02J-332X	MG RESISTOR	3.3kΩ,1/10W	A	B	C
R952	NRSA02J-562X	MG RESISTOR	5.6kΩ,1/10W	A	B	C
R953	NRSA02J-562X	MG RESISTOR	5.6kΩ,1/10W	A	B	C
R964	NRSA02J-101X	MG RESISTOR	100Ω,1/10W	A	B	C
C501	QEKJ1HM-225Z	E CAPACITOR	2.2µF,50V	A	B	C
C502	QEKJ1HM-475Z	E CAPACITOR	4.7µF,25V	A	B	C
C503	QEKJ1HM-225Z	E CAPACITOR	2.2µF,50V	A	B	C
C504	NCB21EK-104X	C CAPACITOR	0.1µF,25V	A	B	C
C505	QEKJ1HM-475Z	E CAPACITOR	4.7µF,25V	A	B	C
C506	NCB21HK-103X	C CAPACITOR	0.01µF,50V	A	B	C
C507	QEKJ0JM-476Z	E CAPACITOR	47µF,6.3V	A	B	C
C508	QEKJ1HM-474Z	E CAPACITOR	0.47µF,50V	A	B	C
C509	QEKJ1CM-106Z	E CAPACITOR	10µF,16V	A	B	C
C510	QEKJ0JM-476Z	E CAPACITOR	47µF,6.3V	A	B	C
C511	NCB21HK-103X	C CAPACITOR	0.01µF,50V	A	B	C
C512	NCB21HK-103X	C CAPACITOR	0.01µF,50V	A	B	C
C513	QEKJ1HM-475Z	E CAPACITOR	4.7µF,25V	A	B	C
C514	NCB21HK-103X	C CAPACITOR	0.01µF,50V	A	B	C
C515	NCB21HK-103X	C CAPACITOR	0.01µF,50V	A	B	C
C516	NCB21HK-103X	C CAPACITOR	0.01µF,50V	A	B	C
C518	NCB21EK-104X	C CAPACITOR	0.1µF,25V	A	B	C
C519	QEKJ1HM-225Z	E CAPACITOR	2.2µF,50V	A	B	C
C520	QEKJ1HM-475Z	E CAPACITOR	4.7µF,25V	A	B	C
C521	QEKJ1HM-475Z	E CAPACITOR	4.7µF,25V	A	B	C

#! REF No.	PART No.	PART NAME, DESCRIPTION		A	B	C
C522	QEKJ1HM-225Z	E CAPACITOR	2.2µF,50V	A	B	C
C523	QEKJ1HM-225Z	E CAPACITOR	2.2µF,50V	A	B	C
C524	NDC21HG-301X	C CAPACITOR	300pF,50V	A	B	C
C525	NDC21HG-301X	C CAPACITOR	300pF,50V	A	B	C
C526	NDC21HJ-101X	C CAPACITOR	100pF,50V	A	B	C
C527	NDC21HJ-181X	C CAPACITOR	180pF,50V	A	B	C
C528	NDC21HG-271X	C CAPACITOR	270pF,50V	A	B	C
C529	NDC21HG-820X	C CAPACITOR	82pF,50V	A	B	C
C530	NDC21HG-221X	C CAPACITOR	220pF,50V	A	B	C
C531	NDC21HG-301X	C CAPACITOR	300pF,50V	A	B	C
C532	NDC21HG-301X	C CAPACITOR	300pF,50V	A	B	C
C533	NCB21HK-103X	C CAPACITOR	0.01µF,50V	A	B	C
C534	QEKJ0JM-476Z	E CAPACITOR	47µF,6.3V	A	B	C
C535	NCB21HK-103X	C CAPACITOR	0.01µF,50V	A	B	C
C551	QEKJ1HM-105Z	E CAPACITOR	1µF,50V	A	B	C
C553	QCBB1HK-103Y	C CAPACITOR	0.01µF,50V	A	B	C
C554	QEKJ1HM-105Z	E CAPACITOR	1µF,50V	A	B	C
C556	QCBB1HK-103Y	C CAPACITOR	0.01µF,50V	A	B	C
C557	QEKJ1HM-105Z	E CAPACITOR	1µF,50V	A	B	C
C559	NCB21HK-103X	C CAPACITOR	0.01µF,50V	A	B	C
C560	QEKJ1HM-105Z	E CAPACITOR	1µF,50V	A	B	C
C561	QEKJ1HM-105Z	E CAPACITOR	1µF,50V	A	B	C
C562	QEKJ1HM-105Z	E CAPACITOR	1µF,50V		B	
C563	NCB21HK-103X	C CAPACITOR	0.01µF,50V	A		C
C564	NCB21HK-103X	C CAPACITOR	0.01µF,50V		B	
C566	NCB21HK-103X	C CAPACITOR	0.01µF,50V		B	
C568	NDC21HJ-680X	C CAPACITOR	68pF,50V	A	B	C
C569	NDC21HJ-680X	C CAPACITOR	68pF,50V	A	B	C
C570	NDC21HJ-680X	C CAPACITOR	68pF,50V	A	B	C
C571	NDC21HJ-680X	C CAPACITOR	68pF,50V	A	B	C
C572	NDC21HJ-680X	C CAPACITOR	68pF,50V	A	B	C
C573	NDC21HJ-680X	C CAPACITOR	68pF,50V	A	B	C
C575	NDC21HJ-101X	C CAPACITOR	100pF,50V	A	B	C
C901	NCB21HK-331X	C CAPACITOR	330pF,50V	A	B	C
C902	NCB21HK-331X	C CAPACITOR	330pF,50V	A	B	C
C903	NCB21HK-471X	C CAPACITOR	470pF,50V	A	B	C
C904	NCB21HK-471X	C CAPACITOR	470pF,50V	A	B	C
C905	NCB21HK-331X	C CAPACITOR	330pF,50V	A	B	C
C906	NCB21HK-331X	C CAPACITOR	330pF,50V	A	B	C
C907	NCB21HK-471X	C CAPACITOR	470pF,50V	A	B	C
C908	NCB21HK-471X	C CAPACITOR	470pF,50V	A	B	C
C910	NCB21HK-102X	C CAPACITOR	0.001µF,50V	A	B	C
C912	NCB21HK-102X	C CAPACITOR	0.001µF,50V	A	B	C
C913	NCB21HK-103X	C CAPACITOR	0.01µF,50V	A	B	C
C914	NCB21HK-103X	C CAPACITOR	0.01µF,50V	A	B	C
C915	NCB21HK-103X	C CAPACITOR	0.01µF,50V	A	B	C
C916	NCB21HK-223X	C CAPACITOR	0.022µF,50V	A	B	C
C917	NCB21HK-223X	C CAPACITOR	0.022µF,50V	A	B	C
C918	QCBB1HK-223Y	C CAPACITOR	0.22µF,50V	A	B	C
C921	NDC21HJ-330X	C CAPACITOR	33pF,50V	A	B	C
C923	QEKJ1CM-476Z	E CAPACITOR	47µF,16V	A	B	C
C924	NCB21HK-103X	C CAPACITOR	0.01µF,50V	A	B	C
C925	NCB21HK-223X	C CAPACITOR	0.022µF,50V	A	B	C
C927	QEKJ1CM-476Z	E CAPACITOR	47µF,16V	A	B	C
C928	NCB21HK-103X	C CAPACITOR	0.01µF,50V	A	B	C
C931	QEKJ1EM-106Z	E CAPACITOR	10µF,25V	A	B	C
C935	NCB21HK-471X	C CAPACITOR	470pF,50V	A	B	C
C936	NCB21HK-471X	C CAPACITOR	470pF,50V	A	B	C
C937	NCB21HK-331X	C CAPACITOR	330pF,50V	A	B	C
C938	NCB21HK-331X	C CAPACITOR	330pF,50V	A	B	C
C939	NCB21HK-471X	C CAPACITOR	470pF,50V	A	B	C

MODEL	MARK
HR-S7960EX	A
HR-S7965EF	B
HR-S7965EK	C

#!	REF No.	PART No.	PART NAME, DESCRIPTION		A	B	C
	C940	NCB21HK-471X	C CAPACITOR	470pF,50V	A	B	C
	C941	QEKJ0JM-227Z	E CAPACITOR	220µF,6.3V	A	B	C
	C942	QEKJ1CM-476Z	E CAPACITOR	47µF,16V	A	B	C
	C943	QEKJ1CM-107Z	E CAPACITOR	100µF,16V	A	B	C
	C945	QEKJ1EM-106Z	E CAPACITOR	10µF,25V	A	B	C
	C946	QEKJ1EM-106Z	E CAPACITOR	10µF,25V	A	B	C
	C950	QEKJ0JM-227Z	E CAPACITOR	220µF,6.3V	A	B	C
	C951	QEKC1CM-476Z	E CAPACITOR	47µF,16V	A	B	C
	C958	NCB21HK-331X	C CAPACITOR	330pF,50V	A	B	C
	C959	NCB21HK-331X	C CAPACITOR	330pF,50V	A	B	C
	L501	QQL29BJ-100Z	P COIL	10µH	A	B	C
	L503	QQL29BJ-100Z	P COIL	10µH	A	B	C
	L504	QQL29BJ-100Z	P COIL	10µH	A	B	C
	L505	QUY153-050Y	IM BUS WIRE		A	B	C
	L901	QQL231J-R22Y	INDUCTOR	0.22µH	A	B	C
	L902	QQL071J-1R0Y	INDUCTOR	1.0µH	A	B	C
	L903	QQL071J-150Y	INDUCTOR	15µH	A	B	C
	L904	QQL071J-150Y	INDUCTOR	15µH	A	B	C
	L906	QUY153-050Y	IM BUS WIRE		A	B	C
	L907	QUY153-050Y	IM BUS WIRE		A	B	C
	L910	QQL071J-1R0Y	INDUCTOR	1.0µH	A	B	C
	L913	QQL071J-4R7Y	INDUCTOR	4.7µH	A	B	C
	L914	QQL071J-4R7Y	INDUCTOR	4.7µH	A	B	C
	L915	QQL071J-4R7Y	INDUCTOR	4.7µH	A	B	C
	L916	QQL071J-4R7Y	INDUCTOR	4.7µH	A	B	C
	L917	QQL071J-4R7Y	INDUCTOR	4.7µH	A	B	C
	L918	QQL071J-4R7Y	INDUCTOR	4.7µH	A	B	C
	L919	QQL071J-4R7Y	INDUCTOR	4.7µH	A	B	C
	L920	QQL071J-4R7Y	INDUCTOR	4.7µH	A	B	C
	J901	PEMC1177	RGB21PIN SOCKET,AV1		A	B	C
	J902	PEMC1177	RGB21PIN SOCKET,AV2		A	B	C
	J904	QND0084-001	S JACK,S OUT		A	B	C
	J915	QNN0418-003	PIN JACK,A.OUT(L)		A	B	C
	J916	QNN0418-002	PIN JACK,A.OUT(R)		A	B	C
	J921	PU60659	MINI JACK,SAT.CTL		A	B	C
⚠	TB1	LP21028-006A	TERMINAL BOARD		A	B	C
	ET1	LP30918-001A	EARTH PLATE,FOR EMC		A	B	C
	ET2	LP30915-001A	EARTH PLATE		A	B	C
	OT1	QYTDSF3008Z	TAP SCREW,X6		A	B	C
	CN511	QGF1208F1-11	FPC CONNECTOR,P/S CONV			B	
	CN911	QGB2024J1-10S	B TO B CONNECTOR		A	B	C
	CN912	QGB2024J1-12S	B TO B CONNECTOR		A	B	C
	CN913	QGB2024J1-10S	B TO B CONNECTOR		A	B	C
	CN914	QGB2024J1-11S	B TO B CONNECTOR		A	B	C
	CN915	QGB2024J1-09S	B TO B CONNECTOR		A	B	C
	CN916	QGF1208F1-04	FPC CONNECTOR,FRONT S IN		A	B	C

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A/C HEAD BOARD ASSEMBLY<12>

PW1	LPA10158-01A1	A/C HEAD BOARD ASSY		A	B	C

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DEMOD BOARD ASSEMBLY<14>

PW1	LPA10094-09A	DEMOD BOARD ASSY		A	C
PW1	LPA10094-10B	DEMOD BOARD ASSY			B
IC6701	MSP3417GQGB8V3X	IC		A	B C
IC6701 or	MSP3417G-X	IC		A	B C

#!	REF No.	PART No.	PART NAME, DESCRIPTION		A	B	C
	IC6701 or	MSP3417D-X	IC		A	B	C
	Q6701	2SC3936/BC/-X	TRANSISTOR		A	B	C
	D6701	1SS133-T2	SI DIODE		A	B	C
	D6701 or	1N4148M-T2	DIODE		A	B	C
	R6701	NRSA02J-392X	MG RESISTOR	3.9kΩ,1/10W	A	B	C
	R6702	NRSA02J-682X	MG RESISTOR	6.8kΩ,1/10W	A	B	C
	R6703	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	A	B	C
	R6704	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	A	B	C
	R6705	NRSA02J-271X	MG RESISTOR	270Ω,1/10W	A	B	C
	R6707	NQR0200-003X	FERRITE BEADS		A	B	C
	R6708	NQR0200-003X	FERRITE BEADS		A	B	C
	R6709	NQR0200-003X	FERRITE BEADS		A	B	C
	R6710	NQR0200-003X	FERRITE BEADS		A	B	C
	R6711	NRSA02J-104X	MG RESISTOR	100kΩ,1/10W	A	B	C
	R6712	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	A	B	C
	R6713	NRSA02J-123X	MG RESISTOR	12kΩ,1/10W	A	B	C
	R6714	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	A	B	C
	R6715	NRSA02J-123X	MG RESISTOR	12kΩ,1/10W	A	B	C
	R6716	NQR0200-003X	FERRITE BEADS		A	B	C
	R6719	QRE141J-103Y	C RESISTOR	10kΩ,1/4W	A	B	C
	R6720	NRSA02J-562X	MG RESISTOR	5.6kΩ,1/10W	A	B	C
	R6721	NRSA02J-562X	MG RESISTOR	5.6kΩ,1/10W	A	B	C
	C6701	NCB21HK-103X	C CAPACITOR	0.01µF,50V	A	B	C
	C6704	NCB21HK-103X	C CAPACITOR	0.01µF,50V	A	B	C
	C6707	NDC21HJ-470X	C CAPACITOR	47pF,50V	A	B	C
	C6708	NDC21HJ-7R0X	C CAPACITOR	7pF,50V	A	B	C
	C6709	NDC21HJ-3R0X	C CAPACITOR	3pF,50V	A	B	C
	C6713	NCF21CZ-224X	C CAPACITOR	0.22µF,16V	A	B	C
	C6714	NCB21HK-222X	C CAPACITOR	0.0022µF,50V	A		C
	C6714	NCB21HK-682X	C CAPACITOR	0.0068µF,50V		B	
	C6715	QEKJ1HM-225Z	E CAPACITOR	2.2µF,50V	A	B	C
	C6716	NCB21HK-222X	C CAPACITOR	0.0022µF,50V	A		C
	C6716	NCB21HK-682X	C CAPACITOR	0.0068µF,50V		B	
	C6717	QEKJ1HM-225Z	E CAPACITOR	2.2µF,50V	A	B	C
	C6719	QEKJ1EM-106Z	E CAPACITOR	10µF,25V	A	B	C
	C6720	QEKJ1EM-106Z	E CAPACITOR	10µF,25V	A	B	C
	C6721	NCB21HK-103X	C CAPACITOR	0.01µF,50V	A	B	C
	C6723	NCB21HK-103X	C CAPACITOR	0.01µF,50V	A	B	C
	C6724	QEKJ1HM-225Z	E CAPACITOR	2.2µF,50V		B	
	L6701	QUY153-050Y	IM BUS WIRE		A	B	C
	X6701	QAX0443-001	CRYSTAL	18.432MHz	A	B	C
	K6701	NRSA02J-330X	MG RESISTOR	33Ω,1/10W	A	B	C
	K6702	NQR0200-003X	FERRITE BEADS		A	B	C
	K6703	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W	A		C
	K6703	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W		B	
	K6704	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	A	B	C
	K6705	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	A		C
	K6705	NRSA02J-100X	MG RESISTOR	10Ω,1/10W		B	
	K6706	NRSA02J-470X	MG RESISTOR	47Ω,1/10W	A	B	C
	K6707	NQR0200-003X	FERRITE BEADS,MS ONLY			B	
	BK1	LP40425-001A	BRACKET(PWB)		A	B	C
	CN6701	QGG2502K1-10	HEADER PIN		A	B	C

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S JACK BOARD ASSEMBLY<36>

PW1	LPA20009-02B	S JACK BOARD ASSY		A	B C
J7102	QND0084-001	S JACK		A	B C
CN7108	QGF1209F1-04	FPC CONNECTOR		A	B C

MODEL	MARK
HR-S7960EX	A
HR-S7965EF	B
HR-S7965EK	C

#! REF No.	PART No.	PART NAME, DESCRIPTION		A B C
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		ADV. JOG BOARD ASSEMBLY<39>		
PW1	LPA10191-03A	ADV JOG BOARD ASSY		A B C
R7047	QRE141J-472Y	C RESISTOR	4.7kΩ,1/4W	A B C
UN7001	QSW0938-001	ROTARY ENCODER,400K		A B C
S7030	QSW0456-002Z	TACT SWITCH,24H EXP		A B C
CN7004	QGF1209F1-04	FPC CONNECTOR,1-4		A B C
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		LOADING MOTOR BOARD ASSEMBLY<55>		
PW2	LPA10158-01A2	LOADING MOTOR BOARD ASSY		A B C
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		S-P CONVERTER BOARD ASSEMBLY<87> [FOR HR-S7965EF]		
PW1	LPA10144-06A	S-P CONV BOARD ASSY,S->P CONV		B
IC1601	BA7046F-XE	IC		B
IC1602	74HC132D-X	IC(DIGITAL)		B
IC1603	74HC4538D-X	IC		B
IC1604	74HC74D-X	IC		B
IC1605	TDA8395	IC		B
IC1606	TDA4665T-X	IC		B
IC1607	TDA8501T/N1-X	IC		B
Q1601	2SB1218A/QR/-X	TRANSISTOR		B
Q1601 or	2SA1576A/QR/-X	TRANSISTOR		B
Q1601 or	2PA1576/R/-X	TRANSISTOR		B
Q1604	2SD1819A/QRS/-X	TRANSISTOR		B
Q1604 or	2SC4081/QRS/-X	TRANSISTOR		B
Q1604 or	2PC4081/R/-X	TRANSISTOR		B
Q1605	2SB1218A/QR/-X	TRANSISTOR		B
Q1605 or	2SA1576A/QR/-X	TRANSISTOR		B
Q1605 or	2PA1576/R/-X	TRANSISTOR		B
Q1606	2SC1740S/QRS/-T	TRANSISTOR		B
Q1607	2SD1819A/QRS/-X	TRANSISTOR		B
Q1607 or	2SC4081/QRS/-X	TRANSISTOR		B
Q1607 or	2PC4081/R/-X	TRANSISTOR		B
Q1608	2SB1218A/QR/-X	TRANSISTOR		B
Q1608 or	2SA1576A/QR/-X	TRANSISTOR		B
Q1608 or	2PA1576/R/-X	TRANSISTOR		B
Q1609	2SD1819A/QRS/-X	TRANSISTOR		B
Q1609 or	2SC4081/QRS/-X	TRANSISTOR		B
Q1609 or	2PC4081/R/-X	TRANSISTOR		B
Q1610	2SD1819A/QRS/-X	TRANSISTOR		B
Q1610 or	2SC4081/QRS/-X	TRANSISTOR		B
Q1610 or	2PC4081/R/-X	TRANSISTOR		B
Q1611	2SB1218A/QR/-X	TRANSISTOR		B
Q1611 or	2SA1576A/QR/-X	TRANSISTOR		B
Q1611 or	2PA1576/R/-X	TRANSISTOR		B
Q1612	2SD1819A/QRS/-X	TRANSISTOR		B
Q1612 or	2SC4081/QRS/-X	TRANSISTOR		B
Q1612 or	2PC4081/R/-X	TRANSISTOR		B
Q1613	2SC4083/NP/-X	TRANSISTOR		B
Q1614	2SB1218A/QR/-X	TRANSISTOR		B
Q1614 or	2SA1576A/QR/-X	TRANSISTOR		B
Q1614 or	2PA1576/R/-X	TRANSISTOR		B
Q1615	2SD1819A/QRS/-X	TRANSISTOR		B
Q1615 or	2SC4081/QRS/-X	TRANSISTOR		B
Q1615 or	2PC4081/R/-X	TRANSISTOR		B
Q1616	2SD1819A/QRS/-X	TRANSISTOR		B
Q1616 or	2SC4081/QRS/-X	TRANSISTOR		B
Q1616 or	2PC4081/R/-X	TRANSISTOR		B
Q1617	2SB1218A/QR/-X	TRANSISTOR		B
Q1617 or	2SA1576A/QR/-X	TRANSISTOR		B
Q1617 or	2PA1576/R/-X	TRANSISTOR		B
Q1619	DTA143TUA-X	DIGI TRANSISTOR		B
D1601	1SS133-T2	SI DIODE		B
R1601	NRSA02J-332X	MG RESISTOR	3.3kΩ,1/10W	B
R1608	NRSA02J-222X	MG RESISTOR	2.2kΩ,1/10W	B
R1609	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	B
R1610	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	B
R1611	NRSA02J-272X	MG RESISTOR	2.7kΩ,1/10W	B
R1612	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W	B
R1615	NRSA02J-331X	MG RESISTOR	330Ω,1/10W	B
R1616	NRSA02J-474X	MG RESISTOR	470kΩ,1/10W	B
R1617	NRSA02J-474X	MG RESISTOR	470kΩ,1/10W	B
R1618	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W	B
R1619	NRSA02J-134X	MG RESISTOR	130kΩ,1/10W	B
R1620	NRSA02J-332X	MG RESISTOR	3.3kΩ,1/10W	B
R1621	QRE141J-103Y	C RESISTOR	10kΩ,1/4W	B
R1622	QRE141J-103Y	C RESISTOR	10kΩ,1/4W	B
R1623	NRSA02J-123X	MG RESISTOR	12kΩ,1/10W	B
R1624	NRSA02J-124X	MG RESISTOR	120kΩ,1/10W	B
R1631	NRSA02J-561X	MG RESISTOR	560Ω,1/10W	B
R1632	NRSA02J-332X	MG RESISTOR	3.3kΩ,1/10W	B
R1633	NRSA02J-223X	MG RESISTOR	22kΩ,1/10W	B
R1635	NRSA02J-122X	MG RESISTOR	1.2kΩ,1/10W	B
R1636	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	B
R1637	NRSA02J-681X	MG RESISTOR	680Ω,1/10W	B
R1638	NRSA02J-101X	MG RESISTOR	100Ω,1/10W	B
R1639	NRSA02J-331X	MG RESISTOR	330Ω,1/10W	B
R1640	NRSA02J-122X	MG RESISTOR	1.2kΩ,1/10W	B
R1641	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	B
R1642	NRSA02J-681X	MG RESISTOR	680Ω,1/10W	B
R1643	NRSA02J-101X	MG RESISTOR	100Ω,1/10W	B
R1644	NRSA02J-331X	MG RESISTOR	330Ω,1/10W	B
R1645	NRSA02J-222X	MG RESISTOR	2.2kΩ,1/10W	B
R1646	NRSA02J-104X	MG RESISTOR	100kΩ,1/10W	B
R1647	NRSA02J-152X	MG RESISTOR	1.5kΩ,1/10W	B
R1648	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	B
R1651	NRSA02J-123X	MG RESISTOR	12kΩ,1/10W	B
R1652	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	B
R1653	NRSA02J-184X	MG RESISTOR	180kΩ,1/10W	B
R1654	NRSA02J-561X	MG RESISTOR	560Ω,1/10W	B
R1655	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	B
R1656	NRSA02J-222X	MG RESISTOR	2.2kΩ,1/10W	B
R1657	NRSA02J-561X	MG RESISTOR	560Ω,1/10W	B
R1658	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	B
R1659	NRSA02J-681X	MG RESISTOR	680Ω,1/10W	B
R1660	NRSA02J-273X	MG RESISTOR	27kΩ,1/10W	B
R1661	NRSA02J-333X	MG RESISTOR	33kΩ,1/10W	B
VR1601	QVP0039-471Z	TRIM RESISTOR		B
VR1602	QVP0039-471Z	TRIM RESISTOR		B
VR1603	QVP0039-104Z	TRIM RESISTOR		B
B1601	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	B
B1602	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	B
B1603	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	B

MODEL	MARK
HR-S7960EX	A
HR-S7965EF	B
HR-S7965EK	C

#! REF No.	PART No.	PART NAME, DESCRIPTION		A B C
B1607	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	B
B1608	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	B
C1601	QEKJ1CM-476Z	E CAPACITOR	47µF,16V	B
C1602	NCB21HK-103X	C CAPACITOR	0.01µF,50V	B
C1605	QEKJ1HM-105Z	E CAPACITOR	1µF,50V	B
C1606	NCB21HK-102X	C CAPACITOR	0.001µF,50V	B
C1607	NCB21HK-103X	C CAPACITOR	0.01µF,50V	B
C1608	QEKJ0JM-476Z	E CAPACITOR	47µF,6.3V	B
C1609	NCB21HK-222X	C CAPACITOR	0.0022µF,50V	B
C1610	QEKJ1HM-105Z	E CAPACITOR	1µF,50V	B
C1611	NDC21HJ-101X	C CAPACITOR	100pF,50V	B
C1612	NCB21EK-104X	C CAPACITOR	0.1µF,25V	B
C1613	NCB21EK-104X	C CAPACITOR	0.1µF,25V	B
C1614	NDC21HJ-471X	C CAPACITOR	470pF,50V	B
C1615	NDC21HJ-561X	C CAPACITOR	560pF,50V	B
C1616	NCB21EK-104X	C CAPACITOR	0.1µF,25V	B
C1631	QEKJ1CM-476Z	E CAPACITOR	47µF,16V	B
C1632	QEKJ1CM-476Z	E CAPACITOR	47µF,16V	B
C1633	NCB21HK-103X	C CAPACITOR	0.01µF,50V	B
C1634	NDC21HJ-101X	C CAPACITOR	100pF,50V	B
C1635	NCB21EK-104X	C CAPACITOR	0.1µF,25V	B
C1636	NCB21CK-224X	C CAPACITOR	0.22µF,16V	B
C1637	NCB21HK-103X	C CAPACITOR	0.01µF,50V	B
C1638	QEKJ0JM-476Z	E CAPACITOR	47µF,6.3V	B
C1639	NCB21HK-103X	C CAPACITOR	0.01µF,50V	B
C1640	QEKJ0JM-476Z	E CAPACITOR	47µF,6.3V	B
C1641	NCB21HK-103X	C CAPACITOR	0.01µF,50V	B
C1642	NCB21HK-103X	C CAPACITOR	0.01µF,50V	B
C1643	NCB21HK-103X	C CAPACITOR	0.01µF,50V	B
C1644	NCB21HK-103X	C CAPACITOR	0.01µF,50V	B
C1645	QEKJ1HM-105Z	E CAPACITOR	1µF,50V	B
C1646	QEKJ1HM-105Z	E CAPACITOR	1µF,50V	B
C1647	NCB21CK-224X	C CAPACITOR	0.22µF,16V	B
C1648	QEKJ0JM-476Z	E CAPACITOR	47µF,6.3V	B
C1649	NCB21HK-103X	C CAPACITOR	0.01µF,50V	B
C1650	NCB21CK-224X	C CAPACITOR	0.22µF,16V	B
C1651	NCB21EK-223X	C CAPACITOR	0.022µF,25V	B
C1652	NDC21HJ-120X	C CAPACITOR	12pF,50V	B
C1653	NCB21CK-224X	C CAPACITOR	0.22µF,16V	B
C1654	NCB21HK-103X	C CAPACITOR	0.01µF,50V	B
C1655	QEKJ0JM-476Z	E CAPACITOR	47µF,6.3V	B
C1656	NCB21HK-103X	C CAPACITOR	0.01µF,50V	B
L1601	QQL29BJ-100Z	P COIL	10µH	B
L1602	QQL29BJ-100Z	P COIL	10µH	B
L1603	QQL29BJ-100Z	P COIL	10µH	B
L1604	QQL29BJ-100Z	P COIL	10µH	B
FL1601	QQR1187-001	EQ		B
FL1602	QQR1187-001	EQ		B
X1601	QAX0613-001Z	CRYSTAL	4.433619MHz	B
BK1	LP30950-001A	BRACKET(1)		B
BK2	LP30951-001A	BRACKET(2)		B
OT1	PU59915-105	#500SPACER0.01,FOR X1601		B
CN1601	QGF1208F1-11	FPC CONNECTOR		B

#! REF No.	PART No.	PART NAME, DESCRIPTION	A B C

JVC
VICTOR COMPANY OF JAPAN, LIMITED
AV & MULTIMEDIA COMPANY. 12,3-chome,Moriya-cho,Kanagawa-ku,Yokohama,Kanagawa-prefecture,221-8528,Japan

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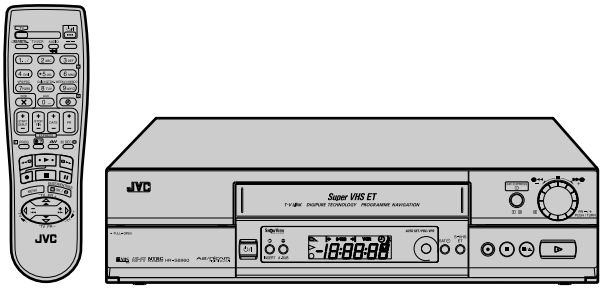
0306 VP

JVC

SERVICE MANUAL

VIDEO CASSETTE RECORDER

HR-S8960Ex, HR-S8965EK, HR-S8960AG



Hi-Fi S-VHS 625

Super VHS ET

SHOWVIEW® DELUXE

For disassembling and assembling of MECHANISM ASSEMBLY, refer to the SERVICE MANUAL No.86700(MECHANISM ASSEMBLY).

SPECIFICATIONS *(The specifications shown pertain specifically to the model HR-S8960EX.)*

GENERAL

Power requirement : AC 220 V – 240 V~, 50 Hz/60 Hz
Power consumption
  Power on : 18 W
  Power off : 3.3 W
Temperature
  Operating : 5°C to 40°C
  Storage : –20°C to 60°C
Operating position : Horizontal only
Dimensions (WxHxD)
  : 400 mm x 94 mm x 270 mm
Weight : 3.3 kg
Format : S-VHS/VHS PAL standard
Maximum recording time
  (SP) : 240 min. with E-240 video cassette
  (LP) : 480 min. with E-240 video cassette
  (EP) : 720 min. with E-240 video cassette

VIDEO/AUDIO

Signal system : PAL-type colour signal and CCIR monochrome signal, 625 lines 50 fields
Recording system : DA4 (Double Azimuth) head helical scan system
Signal-to-noise ratio: 45 dB
Horizontal resolution
  (SP/LP) : 250 lines (VHS)
  400 lines (S-VHS)
  (EP) : 220 lines (VHS)
  350 lines (S-VHS)
Frequency range : 70 Hz to 10,000 Hz (Normal audio)
  20 Hz to 20,000 Hz (Hi-Fi audio)
Input/Output : 21-pin SCART connectors:
  IN/OUT x 1, IN/DECODER x 1
  RCA connectors:
  VIDEO IN x 1, AUDIO IN x 1,
  AUDIO OUT x 1
  S-Video connector:
  IN x 1, OUT x 1

TUNER/TIMER

TV channel storage capacity
  : 99 positions (+AUX position)
Tuning system : Frequency synthesized tuner
Channel coverage : VHF 47 MHz – 89 MHz/
  104 MHz – 300 MHz/
  302 MHz – 470 MHz
  UHF 470 MHz – 862 MHz
Aerial output : UHF channels 22 – 69 (Adjustable)
Memory backup time
  : Approx. 10 min.

ACCESSORIES

Provided accessories
  : RF cable,
  Satellite Controller
  Infrared remote control unit,
  "R6" battery x 2

Specifications shown are for SP mode unless otherwise specified.
E.& O.E. Design and specifications subject to change without notice.

HR-S8960EX,HR-S8965EK,HR-S8960AG V16S25

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No.82957
2003/06

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The following table indicates main different points between models HR-S8960EX, HR-S8965EK and HR-S8960AG.

ITEM \ MODEL	HR-S8960EX	HR-S8965EK	HR-S8960AG
POWER VOLTAGE	220-240V	←	110-240V
POWER SAVE	USED	←	NOT USED
JOG SHUTTLE	ADV.JOG with SPUTTERING	←	ADV.JOG
MBR	NOT USED	←	USED(TV,CABLE/SAT/DVD)
SATTELITE CONTROLLER	USED	←	NOT USED
S CABLE	OPTIONAL	←	PROVIDED
VIDEO SYSTEM(MESECAM)	USED(MANUAL)	NOT USED	USED
VIDEO SYSTEM(NTSC)	PLAYBACK ONLY	←	USED
16:9(WIDE SCREEN)	USED	←	NOT USED
L-1 in	SCART	←	S,RCA
L-2 in	SCART(DECODER)	SCART	NOT USED
BROADCASTING STANDARD	B/G,D/K	I	B/G,D/K,I
BACKUP TIME	10 MINUITES	←	6 MONTHS
AUTO CLOCK	USED	←	NOT USED
VCR PLUS+	SHOWVIEW DELUXE	VIDEOplus+ DELUXE	G-CODE/SHOWVIEW
AUTO GUIDE CHANNEL SET	USED	←	NOT USED
REC LINK	USED(L-2)	←	USED(L-1)
OSD LANGUAGE	13 LANGUAGES	ENGLISH	ENGLISH,CHINESE
TV-LINK	USED	←	NOT USED

Notes: Mark ← is same as left.

Important Safety Precautions

Prior to shipment from the factory, JVC products are strictly inspected to conform with the recognized product safety and electrical codes of the countries in which they are to be sold. However, in order to maintain such compliance, it is equally important to implement the following precautions when a set is being serviced.

●Precautions during Servicing

1. Locations requiring special caution are denoted by labels and inscriptions on the cabinet, chassis and certain parts of the product. When performing service, be sure to read and comply with these and other cautionary notices appearing in the operation and service manuals.

2. Parts identified by the ⚠ symbol and shaded ( ) parts are critical for safety.
   Replace only with specified part numbers.
   Note: Parts in this category also include those specified to comply with X-ray emission standards for products using cathode ray tubes and those specified for compliance with various regulations regarding spurious radiation emission.

3. Fuse replacement caution notice.
   Caution for continued protection against fire hazard.
   Replace only with same type and rated fuse(s) as specified.

4. Use specified internal wiring. Note especially:
   1) Wires covered with PVC tubing
   2) Double insulated wires
   3) High voltage leads

5. Use specified insulating materials for hazardous live parts. Note especially:
   1) Insulation Tape 3) Spacers 5) Barrier
   2) PVC tubing 4) Insulation sheets for transistors

6. When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.) wrap ends of wires securely about the terminals before soldering.

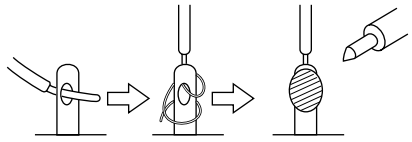


Fig.1

7. Observe that wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.)

8. Check that replaced wires do not contact sharp edged or pointed parts.

9. When a power cord has been replaced, check that 10-15 kg of force in any direction will not loosen it.

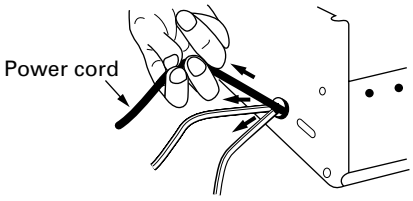


Fig.2

10. Also check areas surrounding repaired locations.

11. Products using cathode ray tubes (CRTs)
    In regard to such products, the cathode ray tubes themselves, the high voltage circuits, and related circuits are specified for compliance with recognized codes pertaining to X-ray emission. Consequently, when servicing these products, replace the cathode ray tubes and other parts with only the specified parts. Under no circumstances attempt to modify these circuits. Unauthorized modification can increase the high voltage value and cause X-ray emission from the cathode ray tube.

12. Crimp type wire connector
    In such cases as when replacing the power transformer in sets where the connections between the power cord and power transformer primary lead wires are performed using crimp type connectors, if replacing the connectors is unavoidable, in order to prevent safety hazards, perform carefully and precisely according to the following steps.

    1) **Connector part number** : E03830-001
    2) **Required tool** : Connector crimping tool of the proper type which will not damage insulated parts.
    3) **Replacement procedure**
       (1) Remove the old connector by cutting the wires at a point close to the connector.
       Important : Do not reuse a connector (discard it).

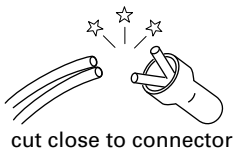


Fig.3

(2) Strip about 15 mm of the insulation from the ends of the wires. If the wires are stranded, twist the strands to avoid frayed conductors.

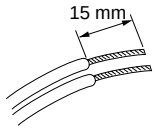


Fig.4

(3) Align the lengths of the wires to be connected. Insert the wires fully into the connector.

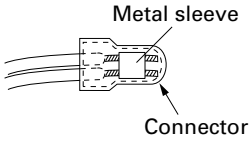


Fig.5

(4) As shown in Fig.6, use the crimping tool to crimp the metal sleeve at the center position. Be sure to crimp fully to the complete closure of the tool.

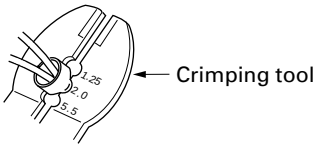


Fig.6

(5) Check the four points noted in Fig.7.

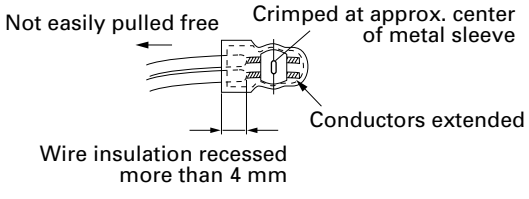

Not easily pulled free
Crimped at approx. center of metal sleeve
Conductors extended
Wire insulation recessed more than 4 mm

Fig.7

● Safety Check after Servicing

Examine the area surrounding the repaired location for damage or deterioration. Observe that screws, parts and wires have been returned to original positions, Afterwards, perform the following tests and confirm the specified values in order to verify compliance with safety standards.

1. Insulation resistance test

Confirm the specified insulation resistance or greater between power cord plug prongs and externally exposed parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table 1 below.

2. Dielectric strength test

Confirm specified dielectric strength or greater between power cord plug prongs and exposed accessible parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table 1 below.

3. Clearance distance

When replacing primary circuit components, confirm specified clearance distance (d), (d') between soldered terminals, and between terminals and surrounding metallic parts. See table 1 below.

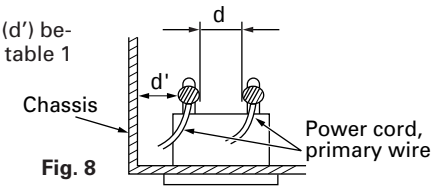


Fig. 8

4. Leakage current test

Confirm specified or lower leakage current between earth ground/power cord plug prongs and externally exposed accessible parts (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.).

Measuring Method : (Power ON)

Insert load Z between earth ground/power cord plug prongs and externally exposed accessible parts. Use an AC voltmeter to measure across both terminals of load Z. See figure 9 and following table 2.

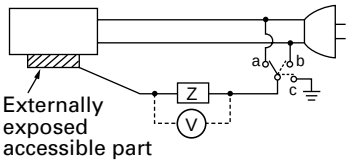


Fig. 9

5. Grounding (Class Ⅰ model only)

Confirm specified or lower grounding impedance between earth pin in AC inlet and externally exposed accessible parts (Video in, Video out, Audio in, Audio out or Fixing screw etc.).

Measuring Method:

Connect milli ohm meter between earth pin in AC inlet and exposed accessible parts. See figure 10 and grounding specifications.

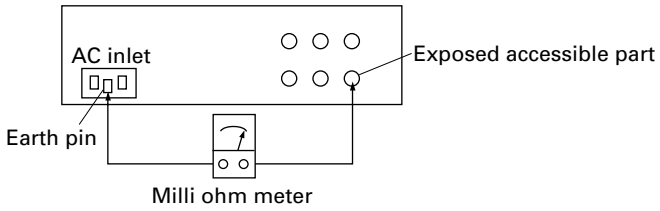


Fig. 10

Grounding Specifications

Region	Grounding Impedance (Z)
USA & Canada	Z ≦ 0.1 ohm
Europe & Australia	Z ≦ 0.5 ohm

AC Line Voltage	Region	Insulation Resistance (R)	Dielectric Strength	Clearance Distance (d), (d')
100 V	Japan	R ≧ 1 MΩ/500 V DC	AC 1 kV 1 minute	d, d' ≧ 3 mm
100 to 240 V			AC 1.5 kV 1 miute	d, d' ≧ 4 mm
110 to 130 V	USA & Canada	1 MΩ ≦ R ≦ 12 MΩ/500 V DC	AC 1 kV 1 minute	d, d' ≧ 3.2 mm
110 to 130 V 200 to 240 V	Europe & Australia	R ≧ 10 MΩ/500 V DC	AC 3 kV 1 minute (Class Ⅱ) AC 1.5 kV 1 minute (Class Ⅰ)	d ≧ 4 mm d' ≧ 8 mm (Power cord) d' ≧ 6 mm (Primary wire)

Table 1 Specifications for each region

AC Line Voltage	Region	Load Z	Leakage Current (i)	a, b, c
100 V	Japan	1 kΩ	i ≦ 1 mA rms	Exposed accessible parts
110 to 130 V	USA & Canada	0.15 µF, 1.5 kΩ	i ≦ 0.5 mA rms	Exposed accessible parts
110 to 130 V 220 to 240 V	Europe & Australia	2 kΩ	i ≦ 0.7 mA peak i ≦ 2 mA dc	Antenna earth terminals
		50 kΩ	i ≦ 0.7 mA peak i ≦ 2 mA dc	Other terminals

Table 2 Leakage current specifications for each region

Note: These tables are unofficial and for reference only. Be sure to confirm the precise values for your particular country and locality.

SECTION 1
DISASSEMBLY

1.1 Manually removing the cassette tape

If you cannot remove the cassette tape which is loaded because of any electrical or mechanical failures, manually remove it by taking the following steps.

(1) Unplug the power cord plug from the power outlet.
(2) Refer to the disassembly procedure of the VCR and perform the disassembly of the major parts before removing the mechanism assembly. (See Fig. 1-1a)

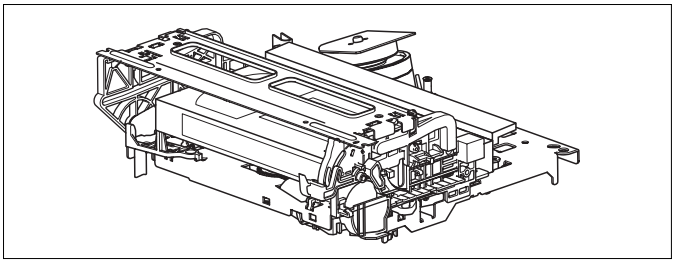


Fig. 1-1a

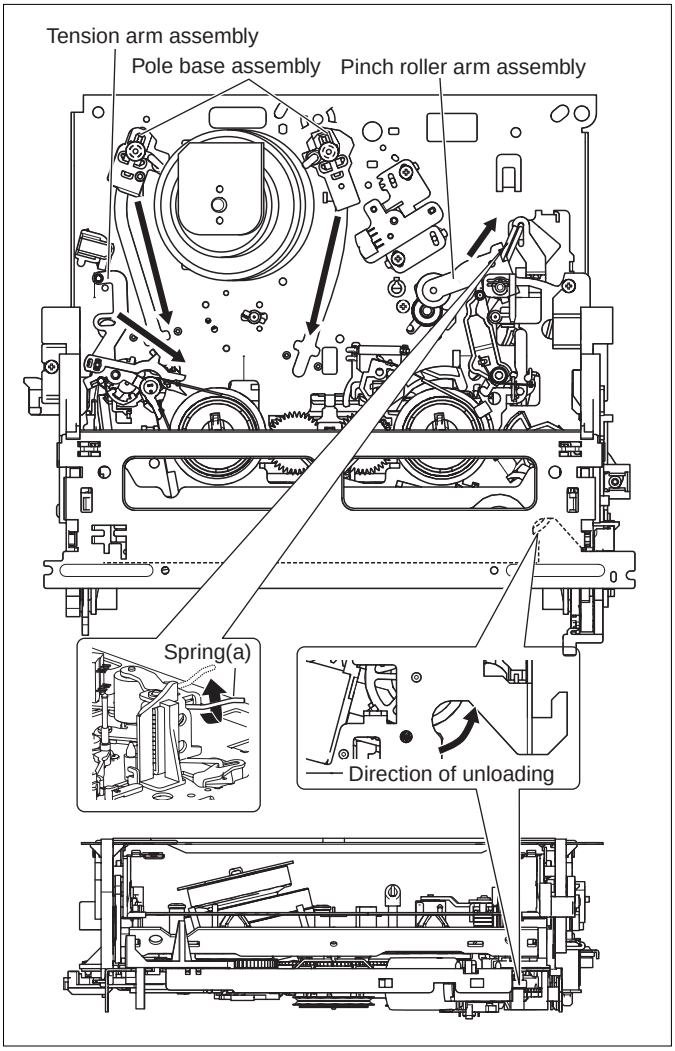


Fig. 1-1b

(3) Unload the pole base assembly by manually turning the gear of the loading motor until the pole base assembly is hidden behind the cassette lid. In doing so, hold the tape by the hand to keep the slack away from any grease. (See Fig. 1-1b.)
In case of mechanical failures, while keeping the tension arm assembly free from tension, pull out the tape on the pole base assembly. Take the spring(a) of the pinch roller arm assembly off the hook, and detach it from the tape.
(4) Remove the screw (a) of the side frame (L/R).
(5) Hold the slack tape and cassette cover together, lift the cassette tape, top frame, cassette holder and side frames (L, R) together from the rear and remove them by disengaging the hooks (a) and (b).

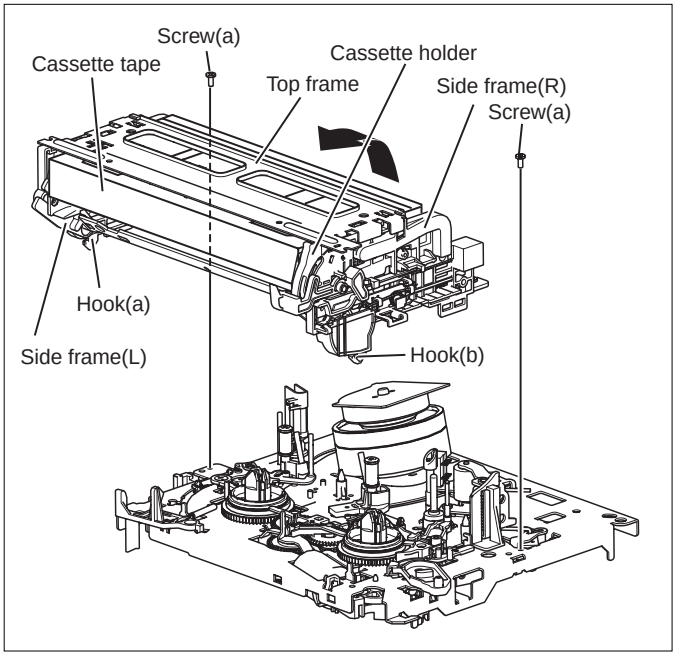


Fig. 1-1c

(6) Take up the slack of the tape into the cassette. This completes removal of the cassette tape.

1.2 Removing the major parts

1.2.1 How to read the procedure table

This table shows the steps for disassembly of the externally furnished parts and board assemblies. Reverse these steps when re-assembling them.

<Example>

Step/ Loc No.	Part Name	Fig. No.	Point	Note
[1]	Top cover,	1-3a	4(S1a),(S1b),3(L1a), 2(SD1a),(P1a),(W1a), CN1(WR1a),	<Note 1a>
	Bracket		2(S1c)	

(1) (2) (3) (4) (5)

(1) Order of steps in Procedure
When reassembling, perform the step(s) in the reverse order.
These numbers are also used as the identification (location) No. of parts Figures.
(2) Part name to be removed or installed.
(3) Fig. No. showing procedure or part location.
(4) Identification of part to be removed, unhooked, unlocked, released, unplugged, unclamped or unsoldered.
P= Spring, W= Washer, S= Screw, L= Locking tab, SD= Solder, CN**(WR**)= Remove the wire (WR**) from the connector (CN**).

Note:

- ***The bracketed ( ) WR of the connector symbol are assigned nos. in priority order and do not correspond to those on the spare parts list.***

(5) Adjustment information for installation

1.2.2 Disassembly procedure

Step/ Loc No.	Part Name	Fig. No.	Point	Note
[1]	Top cover	1-2-2d	4(S1a), (S1b)	
[2]	Front panel assembly	1-2-2d	CN7001(WR2a), CN916(WR2b), 2(S2a), 2(L2a),4(L2b), 3(L2c)	<Note 2a> <Note 2b>
	(ADV. Jog board assembly)		2(S2b), Knob assembly	
	(Front S jack board assembly)		2(S2c)	
[3]	Mechanism assembly	1-2-2d	CN2001(WR3a), (S3a), (S3b)	<Note 2a> <Note 3a> <Note 3b> <Note 3c>
	(Drum assembly)		CN1(WR3b), (S3x), (S3y), (S3z)	
	(Inertia plate)		4(L3a)	
	(Roller arm assembly)		(P3a), (L3b)	
	(H. cleaner assembly) (HR-S8960AG only)		2(L3c)	
[4]	Main board assembly	1-2-2d	(HR-S8960EX,S8965EK) 3(S4a), (L4a)	
			(HR-S8960AG) (L4a)	
[5]	Bottom cover (HR-S8960EX,HR-S8965EK only)	1-2-2d	3(L5a), 5(L5b), 2(L5c)	

<Note 2a>

- Be careful not to damage the connector and wire etc. during connection and disconnection.
- When connecting the flat wire to the connector, be careful with the flat wire direction.

<Note 2b>

- When reattaching the Front panel assembly, make sure that the door opener of the Side frame (R) is lowered in position prior to the reinstallation.
- When reattaching the Front panel assembly, pay careful attention to the switch lever of the Front panel assembly not to make it touch the switch knob of the Main board assembly from the side.
- When reattaching the Front panel assembly, lift the Cassette door slightly.

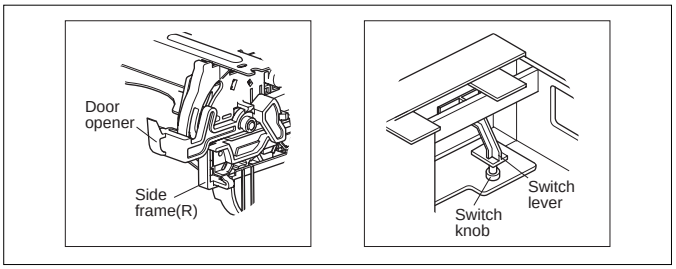


Fig. 1-2-2a

<Note 3a>

- When reattaching the Mechanism assembly, secure the screws (S3a to S3b) in the order of a, b.

<Note 3b>

- When reattaching the Mechanism assembly, be sure to align the phase of the Rotary encoder on the Main board assembly.
- When reattaching the Mechanism assembly, set the “Mechanism assembling mode”. (See “section 2 mechanism”.)
- When reattaching the Mechanism assembly to the Main board assembly, take care not to damage the sensors and switch on the Main board assembly.

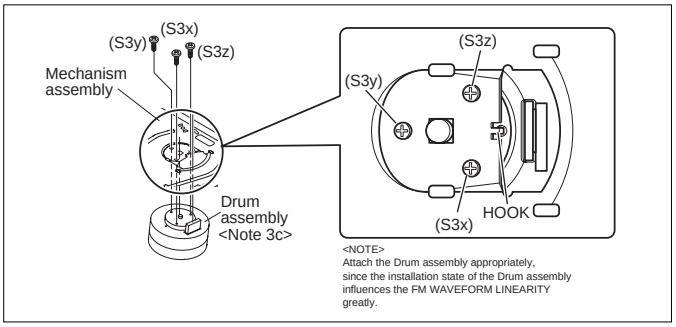


Fig. 1-2-2b

<Note 3c>

- When reattaching the Drum assembly, secure the screws (S3x to S3z) in the order of x, y, z.
- When handling the drum assembly alone, hold it by the motor or shaft. Be careful not to touch other parts, especially the video heads. Also take care not to damage the connectors.

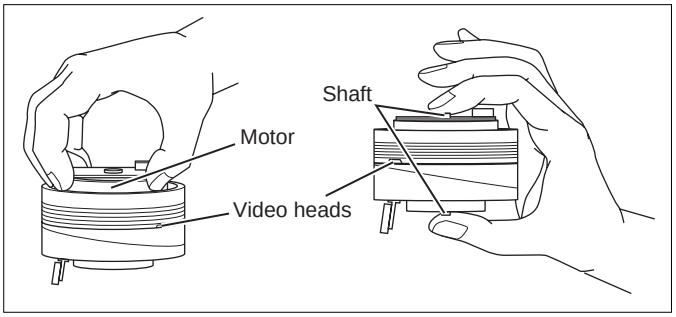


Fig. 1-2-2c

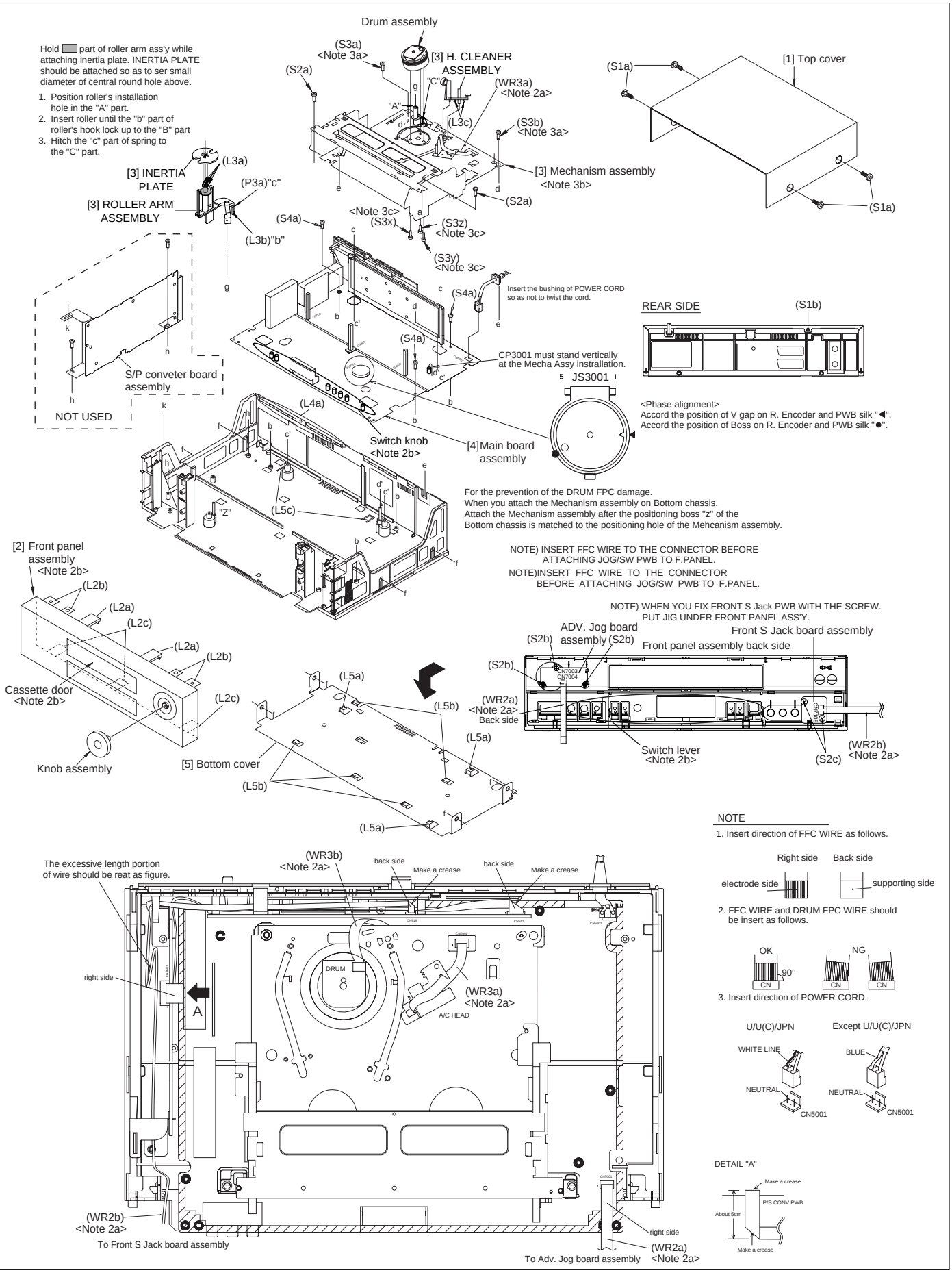

Drum assembly
Hold part of roller arm ass'y while attaching inertia plate. INERTIA PLATE should be attached so as to ser small diameter of central round hole above.
1. Position roller's installation hole in the "A" part.
2. Insert roller until the "b" part of roller's hook lock up to the "B" part
3. Hitch the "c" part of spring to the "C" part.
(S3a) <Note 3a>
[3] H. CLEANER ASSEMBLY
(S2a)
(WR3a) <Note 2a>
(L3c)
(S3b) <Note 3a>
[3] Mechanism assembly <Note 3b>
(S2a)
[1] Top cover
(S1a)
(S1a)
(L3a)
[3] INERTIA PLATE
(P3a)"c"
[3] ROLLER ARM ASSEMBLY
(L3b)"b"
(S4a)
<Note 3c>
(S3x)
(S3z) <Note 3c>
(S3y) <Note 3c>
Insert the bushing of POWER CORD so as not to twist the cord.
(S4a)
REAR SIDE
(S1b)
(S4a)
CP3001 must stand vertically at the Mecha Assy installation.
JS3001
S/P conveter board assembly
NOT USED
(L4a)
Switch knob <Note 2b>
[4]Main board assembly
<Phase alignment>
Accord the position of V gap on R. Encoder and PWB silk "◀".
Accord the position of Boss on R. Encoder and PWB silk "●".
"Z"
(L5c)
For the prevention of the DRUM FPC damage.
When you attach the Mechanism assembly on Bottom chassis.
Attach the Mechanism assembly after the positioning boss "z" of the Bottom chassis is matched to the positioning hole of the Mehcanism assembly.
[2] Front panel assembly <Note 2b>
(L2b)
(L2a)
(L2c)
(L2a)
(L2b)
Cassette door <Note 2b>
(L2c)
Knob assembly
[5] Bottom cover
(L5a)
(L5b)
(L5b)
(L5a)
(L5a)
NOTE) INSERT FFC WIRE TO THE CONNECTOR BEFORE ATTACHING JOG/SW PWB TO F.PANEL.
NOTE)INSERT FFC WIRE TO THE CONNECTOR BEFORE ATTACHING JOG/SW PWB TO F.PANEL.
NOTE) WHEN YOU FIX FRONT S Jack PWB WITH THE SCREW. PUT JIG UNDER FRONT PANEL ASS'Y.
ADV. Jog board assembly
(S2b)
(S2b)
Front panel assembly back side
Front S Jack board assembly
(S2b)
CN7003
CN7004
(WR2a) <Note 2a> Back side
Switch lever <Note 2b>
(S2c)
(WR2b) <Note 2a>
The excessive length portion of wire should be reat as figure.
(WR3b) <Note 2a>
back side
Make a crease
back side
Make a crease
right side
A
DRUM
(WR3a) <Note 2a>
A/C HEAD
(WR2b) <Note 2a>
To Front S Jack board assembly
right side
(WR2a) <Note 2a>
To Adv. Jog board assembly
NOTE
1. Insert direction of FFC WIRE as follows.
Right side
Back side
electrode side
supporting side
2. FFC WIRE and DRUM FPC WIRE should be insert as follows.
OK
NG
90°
CN
CN
CN
3. Insert direction of POWER CORD.
U/U(C)/JPN
Except U/U(C)/JPN
WHITE LINE
BLUE
NEUTRAL
NEUTRAL
CN5001
CN5001
DETAIL "A"
Make a crease
P/S CONV PWB
About 5cm
Make a crease

Fig. 1-2-2d

1.3 Emergency display function

This unit saves details of the last two emergencies as the EMG history and allows the status of the VCR and the mechanism of each emergency to be shown both on the display and as OSD information.
When using the emergency function, it is required to set the VCR to the Jig RCU mode (the mode in which codes from the Jig RCU can be received).

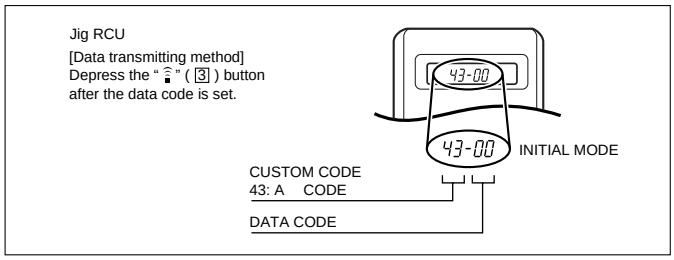


Fig. 1-3a Jig RCU [PTU94023B]

1.3.1 Displaying the EMG information

The EMG detail of information can be displayed by transmitting the code "59" from the Jig RCU.

Note:

- ***The EMG detail information <1><2> show the information on the latest EMG.***
  It becomes " – – : – – : – –" when there is no latest EMG record.

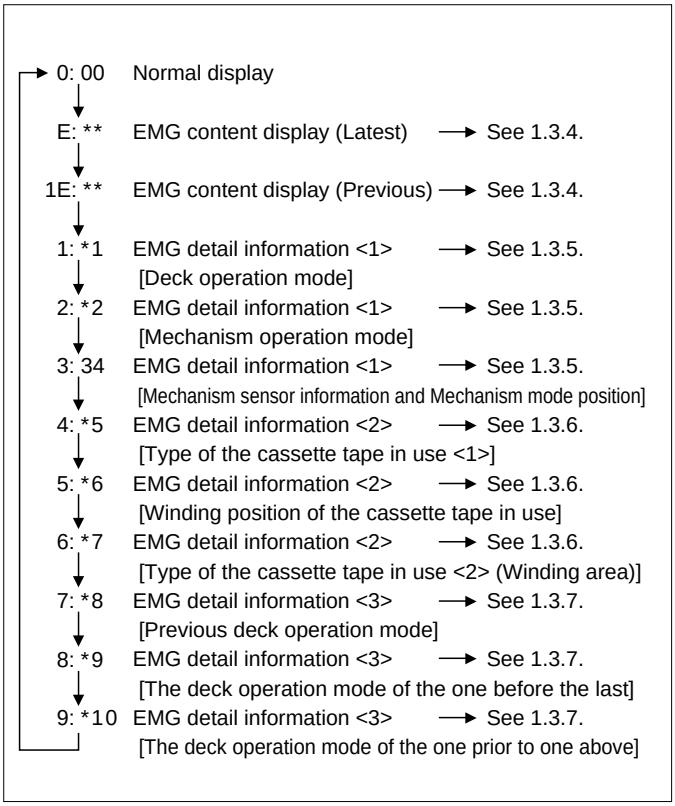

0: 00 Normal display
E: ** EMG content display (Latest) → See 1.3.4.
1E: ** EMG content display (Previous) → See 1.3.4.
1: *1 EMG detail information <1> → See 1.3.5.
[Deck operation mode]
2: *2 EMG detail information <1> → See 1.3.5.
[Mechanism operation mode]
3: 34 EMG detail information <1> → See 1.3.5.
[Mechanism sensor information and Mechanism mode position]
4: *5 EMG detail information <2> → See 1.3.6.
[Type of the cassette tape in use <1>]
5: *6 EMG detail information <2> → See 1.3.6.
[Winding position of the cassette tape in use]
6: *7 EMG detail information <2> → See 1.3.6.
[Type of the cassette tape in use <2> (Winding area)]
7: *8 EMG detail information <3> → See 1.3.7.
[Previous deck operation mode]
8: *9 EMG detail information <3> → See 1.3.7.
[The deck operation mode of the one before the last]
9: *10 EMG detail information <3> → See 1.3.7.
[The deck operation mode of the one prior to one above]

Fig. 1-3-1a EMG display of 7segment LED display model

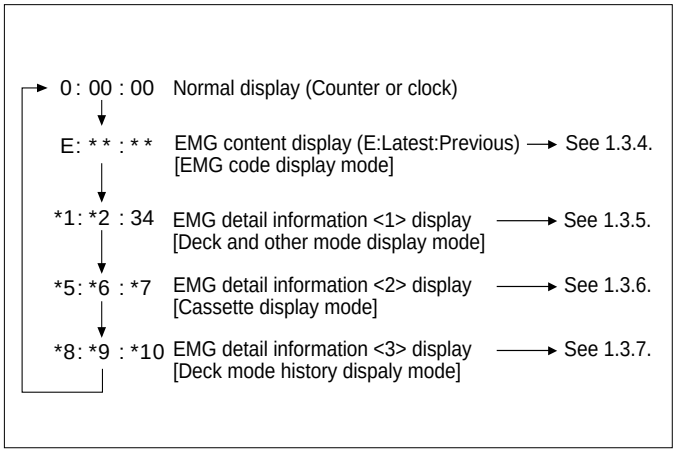

0 : 00 : 00 Normal display (Counter or clock)
E: * * : * * EMG content display (E:Latest:Previous) → See 1.3.4.
[EMG code display mode]
*1: *2 : 34 EMG detail information <1> display → See 1.3.5.
[Deck and other mode display mode]
*5: *6 : *7 EMG detail information <2> display → See 1.3.6.
[Cassette display mode]
*8: *9 : *10 EMG detail information <3> display → See 1.3.7.
[Deck mode history dispaly mode]

Fig. 1-3-1b EMG display of FDP display model

<Reference> EMG display of FDP display mode

(1) Transmit the code "59" from the Jig RCU.
The FDP shows the EMG content in the form of "E: * * : * * ".

<Example 1> E : 01 : 03
Previous EMG
Latest EMG

<Example 2> E : – – : – – ← No EMG record

(2) Transmit the code "59" from the Jig RCU again.
The FDP shows the EMG detail information <1> in the form of " * 1 : * 2 : 34 ".
- * 1 : Deck operation mode at the moment of EMG
- * 2 : Mechanism operation mode at the moment of EMG
- 3– : Mechanism sensor information at the moment of EMG
- –4 : Mechanism mode position at the moment of EMG

(3) Transmit the code "59" from the Jig RCU once again.
The FDP shows the EMG detail information <2> in the form of " * 5 : * 6 : * 7 ".
- * 5 : Type of the cassette tape in use <1> .
- * 6 : Winding position of the cassette tape in use
- * 7 : Type of the cassette tape in use <2> (Winding area)

(4) Transmit the code "59" from the Jig RCU once again.
The FDP shows the EMG detail information <3> in the form of "*8 : *9 : *10".
- * 8 : Previous deck operation mode at the moment of EMG
- * 9 : The deck operation mode of the one before the last at the moment of EMG
- * 10 : The deck operation mode of the one prior to one above at the moment of EMG

(5) Transmit the code "59" from the Jig RCU once again to reset the display.

1.3.2 Clearing the EMG history

(1) Display the EMG history.
(2) Transmit the code "36" from the Jig RCU.
(3) Reset the EMG display.

1.3.3 Details of the OSD display in the EMG display mode

During the EMG display, the OSD shows the data on the deck mode, etc. The details of the display contents are as follows.

Notes:

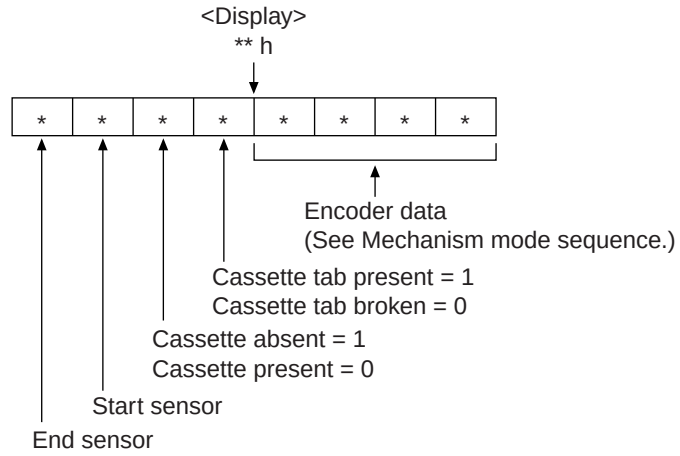
- ***The display is variable depending on the part No. of the System Control microcomputer (IC3001) built into the VCR. In the following, refer to the figure carrying the same two characters as the top two characters of the part number of your IC.***
- ***The sensor information in the OSD display contents is partially different from the mechanism sensor information in EMG detail information <1>.***

[For MN* only]

AA	BB	CC	DD	EE
FF	GG	HH	I I	J J
KK	L L	MM	NN	OO
PP	QQ	RR	SS	TT
UU	VV	WW	XX	YY

A A : Deck operation mode (See EMG detail information <1>.)
B B : Mechanism operation mode (See EMG detail of information <1>.)
C C : Mechanism transition flag
D D : Capstan motor control status
E E : Loading motor control status
F F : Sensor information (See sensor information details.)
GG : Capstan motor speed
HH : Key code (JVC code)
I I : Supply reel winding diameter data, higher 8 bits.
J J : Supply reel winding diameter data, lower 8 bits.
KK : Mechanism sensor information & mechanism mode position (See EMG detail of information <1>.)
L L : Tape speed data, higher 8 bits.
MM : Tape speed data, lower 8 bits.
N N : Cassette tape type <2>, higher 8 bits. (See EMG detail of information <2>.)
OO : Cassette tape type <2>, lower 8 bits. (See EMG detail of information <2>.)
P P : General data display area
| |
Y Y : General data display area

***FF: Sensor information details**

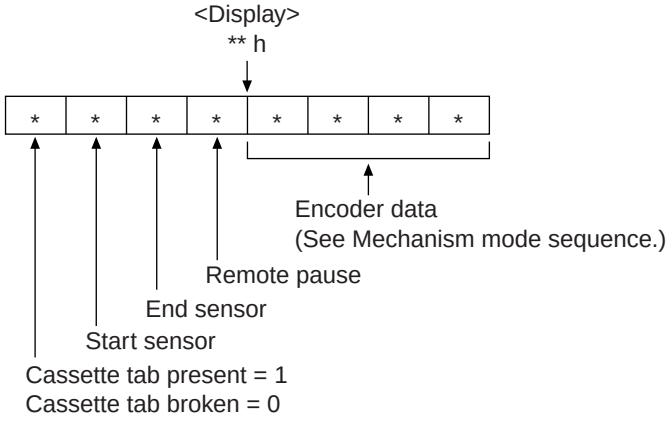


[For *HD only]

AA	BB	CC
DD	EE	FF
GGGG	HHHH	
I I	J J J J	
KKKK	L L L L	MMMM
ROM No.		

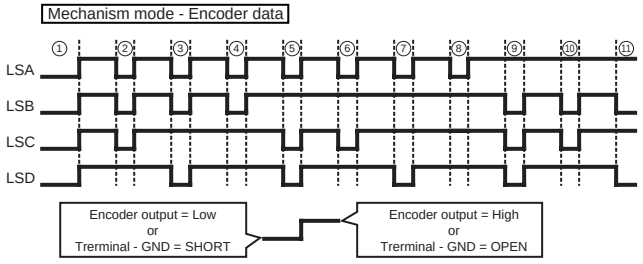
A A : Key code (JVC code)
B B : Deck operation mode (See EMG detail information <1>.)
C C : Mechanism operation mode (See EMG detail information <1>.)
D D : Sensor information (See sensor information details.)
E E : Capstan motor speed (Search, double speed)
F F : Tracking value
GGGG : Cassette tape type <2>, 16 bits. (See EMG detail information <2>.)
HHHH : Supply reel winding diameter data
I I : Capstan motor speed (FF/REW, double speed)
J J J J : Tape speed data, lower 8 bits.
K K K K : General data display area
L L L L : General data display area
MMMM : General data display area

***DD: Sensor information details**

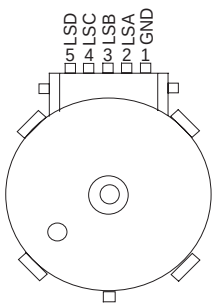


[For both MN*/HD*]

Mechanism mode sequence



No.	Position	Encoder data
①	EJECT	0 h = 0000
②	EJECT1	1 h = 0001
③	EJECT2	2 h = 0010
④	ULSTOP	3 h = 0011
⑤	UPPER	4 h = 0100
⑥	ONSTOP(PLAY)	5 h = 0101
⑦	FWD/SS	6 h = 0110
⑧	REV/SS	7 h = 0111
⑨	OFFSTOP	8 h = 1000
⑩	FFREW-BRAKE	9 h = 1001
⑪	FFREW	A h = 1010
⑫	MIDDLE	F h = 1111



1.3.4 EMG content description

Note: ***EMG contents "E08/E09" are for the model with Dynamic Drum (DD).***

FDP	CONTENT	CAUSE
E01: Loading EMG	If the mechanism mode does not change to the next mode within 4 seconds after the loading motor starts rotating in the loading direction, while the mechanism is in the after-loading position (with the tape up against the pole base), [E:01] is identified and the power is switched OFF. However, if the tape loading is not completed within 4 seconds after the loading motor starts rotating in the loading direction, the tape is simply unloaded and ejected. No EMG data is recorded in this case.	1. The mechanism is locked in the middle of the mode transition during a tape loading operation. 2. The mechanism overruns during the tape loading operation because the SYSCON cannot recognize the mechanism mode normally. This problem is due to a cause such as a rotary encoder failure. 3. Power is not supplied to the loading MDA. (M12V/Vcc/Vref/ICP are disconnected in the middle.)
E02: Unloading EMG	When the mechanism mode cannot be changed to another mode even when the loading motor has rotated for more than 4 seconds in the unloading direction, [E:02] is identified and the power is turned off.	1. The mechanism is locked in the middle of mode transition. 2. Without an eject signal being sent from the SYSCON, unloading is attempted (i.e. Ejection is attempted while the tape is still inside the mechanism.) because the SYSCON cannot recognize the mechanism mode normally. This is due to a cause such as a rotary encoder failure. (Mechanism position: UPPER) 3. Power is not supplied to the loading MDA. (M12V/Vcc/Vref/ICP are disconnected in the middle.)
E03: Take Up Reel Pulse EMG	When the falling edje of the take-up reel pulse has not been generated for more than 4 seconds in the capstan rotating mode, [E:03] is identified, the pinch rollers are turned off and stopped, and the power is turned off. In this case, however, the mechanism should be in position after tape loading. Note that the reel EMG is not detected during Slow/Frame advance operations.	1. The take-up reel pulse is not generated in the FWD transport modes (PLAY/FWD SEARCH/FF, etc.) because; 1)The idler gear is not meshed with the take-up reel gear because the mechanism malfunctions for some reason. 2)The idler gear is meshed with the take-up reel gear, but incapable of winding due to too large mechanical load (abnormal tension); 3)The reel is rotating normally but an FG pulse is not generated due to the take-up reel sensor failure. 2. The supply reel pulse is not generated in the REV transport modes (REV SEARCH/REW, etc.) because; 1) The idler gear is not meshed with the supply reel gear because the mechanism malfunctions for some reason. 2) The idler gear is meshed with the supply reel gear, but incapable of winding due to too large a mechanical load (abnormal tension); 3) The reel rotates normally but the FG pulse is not generated due to a supply reel sensor failure. 3. Power(SW5V) is not supplied to the reel sensor on the tape winding side.
E04: Drum FG EMG	When the drum FG pulse has not been input for more than 3 seconds in the drum rotating mode, [E:04] is identified, the pinch rollers are turned off and stopped, and the power is turned off.	1. The drum could not start or the drum rotation has stopped due to too large a load on the tape, because; 1) The tape tension is abnormally high; 2) The tape is damaged or a foreign object (grease, etc.) adheres to the tape. 2. The drum FG pulse did not reach the System controller CPU because; 1) The signal circuit is disconnected in the middle; 2) The FG pulse generator (hall device) of the drum is faulty. 3. The drum control voltage (DRUM CTL V) is not supplied to the MDA. 4. Power (M12V) is not supplied to the drum MDA.
E05: Cassette Eject EMG	If the cassette does not reach the eject position within about 0.7 seconds after the cassette housing has started the cassette ejection operation, [E:05] is identified, the drive direction is reversed to load the tape, the mode is switched to STOP mode with the pinch roller OFF, and the power is switched OFF. During the cassette insertion process, the drive direction is reversed and the cassette is ejected if the tape is not up against the pole base within about 3 seconds after the start of the cassette pulling-in operation. If the cassette does not reach the eject position within about 0.7 seconds after the drive mode reversal operation, [E:05] is identified and the power is switched OFF immediately.	1. The cassette cannot be ejected due to a failure in the drive mechanism of the housing. 2. When the housing load increases during ejection, the loading motor is stopped because of lack of headroom in its drive torque. Housing load increasing factors: Temperature environment (low temperature, etc.), mechanism wear or failure. 3. The sensor/switch for detecting the end of ejection are not functioning normally. 4. The loading motor drive voltage is lower than specified or power (M12V) is not supplied to the motor (MDA). 5. When the user attempted to eject a cassette, a foreign object (or perhaps the user's hand) was caught in the opening of the housing.
E06: Capstan FG EMG	When the capstan FG pulse has not been generated for more than 1 second in the capstan rotating mode, [E:06] is identified, the pinch rollers are turned off and stopped, and the power is turned off.However, the capstan EMG is not detected in SLOW/STILL modes. Note that, if the part number of the System Control IC begins with "MN" or "M3", the capstan EMG is not detected even during the FF/REW operation.	1. The capstan could not start or the capstan rotation has stopped due to too large a load on the tape, because; 1) The tape tension is abnormally high (mechanical lock); 2) The tape is damaged or a foreign object (grease, etc.) is adhered to the tape (occurrence of tape entangling, etc.). 2. The capstan FG pulse did not reach the System controller CPU because; 1) The signal circuit is disconnected in the middle; 2) The FG pulse generator (MR device) of the capstans is faulty. 3. The capstan control voltage (CAPSTAN CTL V) is not supplied to the MDA. 4. Power (M12V, SW5V) are not supplied to the capstan MDA.
E07: SW Power Short-Circuit EMG	When short-circuiting of the SW power supply with GND has lasted for 0.5 second or more, [E:07] is identified, all the motors are stopped and the power is turned off.	1. The SW 5 V power supply circuit is shorted with GND. 2. The SW 12 V power supply circuit is shorted with GND.
E08: DD Initialized (Absolute Position Sensor) EMG	When DD tilting does not complete in 4 seconds, [E:08] is identified, the tilt motor is stopped and the power is turned off.	1. The absolute value sensor is defective. (The soldered parts have separated.) 2. The pull-up resistor at the absolute sensor output is defective. (The soldered parts have separated.) 3. Contact failure or soldering failure of the pins of the connector (board-to-board) to the absolute value sensor. 4. The absolute value sensor data is not sent to the System Controller CPU.
E09: DD FG EMG	When the DD FG pulse is not generated within 2.5 seconds, [E:09] is identified, the tilt motor is stopped and the power is turned off.	1. The FG sensor is defective. (The soldered parts have separated.) 2. The pull-up resistor at the FG sensor output is defective. (The soldered parts have separated.) 3. Contact failure or soldering failure of the pins of the connector (board-to-board) to the FG sensor. 4. The power (5V) to the sensor is not supplied. (Connection failure/soldering failure) 5. The FG pulse is not sent to the System Controller CPU. 6. The tilt motor is defective. (The soldered parts have separated.) 7. The drive power to the tilt motor is not supplied. (Connection failure/soldering failure) 8. The tilt motor drive MDA - IC is defective. 9. Auto-recovery of the DD tilting cannot take place due to overrun.
E0A: Supply Reel Pulse EMG	When the falling edge of the supply reel pulse has not been generated for more than 10 seconds in the capstan rotating mode, [E:0A] is identified and the cassette is ejected (but the power is not turned off). In this case, however, the mechanism should be in the position after tape loading (with the tape up against the pole base). Also note that the reel EMG is not detected during Slow/Frame advance operations.	1. The supply reel pulse is not generated in the FWD transport mode (PLAY/FWD SEARCH/FF, etc.) because; 1) PLAY/FWD or SEARCH/FF is started while the tape in the inserted cassette is cut in the middle; 2) A mechanical factor caused tape slack inside and outside the supply reel side of the cassette shell. In this case, the supply reel will not rotate until the tape slack is removed by the FWD transport, so the pulse is not generated until then; 3) The reel is rotating normally but the FG pulse is not generated due to a supply reel sensor failure. 2. The take-up reel pulse is not generated in the REV transport mode (REV SEARCH/REW, etc.). 1) REV SEARCH/REW is started when the tape in the inserted cassette has been cut in the middle; 2) A mechanical factor caused tape slack inside and outside the take-up reel side of the cassette shell. In this case, the take-up reel will not rotate until the tape slack is removed by the REV transport, so the pulse will not be generated until that time; 3) The reel is rotating normally but the FG pulse is not generated due to a take-up reel sensor failure. 3. The power (SW 5V) to a reel sensor is not supplied.
EU1: Head clog warning history	Presupposing the presence of the control pulse output in the PLAY mode, when the value obtained by mixing the two V.FM output channels (without regard to the A.FM output) has remained below a certain threshold level for more than 10 seconds, [E:U1] is identified and recorded in the emergency history. During the period in which the head clog is detected, the FDP shows "U:01" and the OSD repeats the "3 seconds of warning display" and the "7 seconds of noise picture display" alternately. EMG code : "E:C1" or "E:U1" / FDP : "U:01" / OSD : "Try cleaning tape." or "Use cleaning cassette." The head clog warning is reset when the above-mentioned threshold has been exceeded for more than 2 seconds or the mode is changed to another mode than PLAY.	

Table 1-3-4a

1.3.5 EMG detail information <1>

The status (electrical operation mode) of the VCR and the status (mechanism operation mode/sensor information) of the mechanism in the latest EMG can be confirmed based on the figure in EMG detail information <1> .

[FDP/OSD display]

*1 : *2 : 34

*1 : Deck operation mode at the moment of EMG
*2 : Mechanism operation mode at the moment of EMG
3– : Mechanism sensor information at the moment of EMG
–4 : Mechanism mode position at the moment of EMG

Note:

- ***For EMG detailed information <1>, the content of the code that is shown on the display (or OSD) differs depending on the parts number of the system control microprocessor (IC3001) of the VCR. The system control microprocessor parts number starts with two letters, refer these to the corresponding table.***

***1 : Deck operation mode**
[Common table of MN* and HD]

Display		Deck operation mode
MN*	HD*	
00	-	Mechanism being initialized
01	00	STOP with pinch roller pressure off (or tape present with P.OFF)
02	01	STOP with pinch roller pressure on
03	-	POWER OFF as a result of EMG
04	04	PLAY (Normal playback)
0C	0E	REC
10	11	Cassette ejected
20	22	FF
21	-	Tape fully loaded, START sensor ON, short FF
22	-	Cassette identification FWD SEARCH before transition to FF (SP x7-speed)
24	26	FWD SEARCH (variable speed) including x2-speed
2C	2E	INSERT REC
40	43	REW
42	-	Cassette identification REV SEARCH before transition to REW (SP x7-speed)
44	47	REV SEARCH (variable speed)
4C	4C	AUDIO DUB
6C	6E	INSERT REC (VIDEO + AUDIO)
84	84	FWD STILL / SLOW
85	85	REV STILL / SLOW
8C	8F	REC PAUSE
8D	-	Back spacing
8E	-	Forward spacing (FWD transport mode with BEST function)
AC	AF	INSERT REC PAUSE
AD	-	INSERT REC back spacing
CC	CD	AUDIO DUB PAUSE
CD	-	AUDIO DUB back spacing
EC	EF	INSERT REC (VIDEO + AUDIO) PAUSE
ED	-	INSERT REC (VIDEO + AUDIO) back spacing

***2 : Mechanism operation mode**
[Table of MN*]

Display	Mechanism operation mode
00	Command standby (No command to be executed)
01	Immediate Power OFF after EMG occurrence
02	Loading from an intermediate position during mechanism initialization
03	Unloading due to EMG occurrence during mechanism initialization
04	Ejecting cassette (ULSTOP to EJECT)
05	Inserting cassette (EJECT to ULSTOP)
06	Loading tape (ULSTOP to PLAY)
07	Unloading tape (PLAY to ULSTOP)
08	Transition from pinch roller ON to STOP
09	Transition from pinch roller OFF to STOP (PLAY to OFFSTOP)
0A	Transition from pinch roller OFF to STOP at power OFF
0B	Transition from pinch roller ON to STOP at power ON
0C	Transition to PLAY
0D	Transition to Search FF
0E	Transition to REC
0F	Transition to FWD STILL/SLOW
10	Transition to REV STILL/SLOW
11	Transition to Search REV
12	Transition from FF/REW to STOP
13	Transition to FF
14	Transition to REW
15	Tape end detection processing during loading
16	Short FWD/REV at tape sensor ON during unloading
17	Transition to FF/REW brake mode

[Table of HD*]

Display	Mechanism operation mode
00	STOP with pinch roller pressure off
01	STOP with pinch roller pressure on
02	U/L STOP (or tape being loaded)
04	PLAY (Normal playback)
05	PLAY (x1-speed playback using JOG)
0E	REC
11	Cassette ejected
22	FF
26	FWD SEARCH (variable speed) including x2-speed
2E	INSERT REC
43	REW
47	REV SEARCH
4C	AUDIO DUB
6E	INSERT REC (VIDEO + AUDIO)
84	FWD STILL/SLOW
85	REV STILL/SLOW
8F	REC PAUSE
AF	INSERT REC PAUSE
C7	REV SEARCH (x1-speed reverse playback using JOG)
CD	AUDIO DUB PAUSE
EF	INSERT REC (VIDEO + AUDIO) PAUSE
F0	Mechanism being initialized
F1	POWER OFF as a result of EMG
F2	Cassette being inserted
F3	Cassette being ejected
F4	Transition from STOP with pinch roller pressure on to STOP with pinch roller pressure off
F5	Transition from STOP with pinch roller pressure on to PLAY
F6	Transition from STOP with pinch roller pressure on to REC
F7	Cassette type detection SEARCH before FF/REW is being executed
F8	Tape being unloaded
F9	Transition from STOP with pinch roller pressure off to STOP with pinch roller pressure on
FA	Transition from STOP with pinch roller pressure off to FF/REW
FB	Transition from STOP with pinch roller pressure off to REC.P (T.REC,etc.)
FC	Transition from STOP with pinch roller pressure off to cassette type detection SEARCH
FD	Short REV being executed after END sensor on during unloading
FE	Tension loosening being executed after tape loading (STOP with pinch roller pressure on)
FF	Tape being unloaded

3– : Mechanism sensor information
[Common table of MN* and HD*]

Display	Mechanism sensor information			
	REC safety SW	Start sensor	End sensor	Mechansim position sensor
0-	Tab broken	ON	ON	ON
1-	Tab broken	ON	ON	OFF
2-	Tab broken	ON	OFF	ON
3-	Tab broken	ON	OFF	OFF
4-	Tab present	OFF	ON	ON
5-	Tab present	OFF	ON	OFF
6-	Tab present	OFF	OFF	ON
7-	Tab present	OFF	OFF	OFF
8-	Tab broken	ON	ON	ON
9-	Tab broken	ON	ON	OFF
A-	Tab broken	ON	OFF	ON
B-	Tab broken	ON	OFF	OFF
C-	Tab present	OFF	ON	ON
D-	Tab present	OFF	ON	OFF
E-	Tab present	OFF	OFF	ON
F-	Tab present	OFF	OFF	OFF

Tab broken = 0 Sensor ON = 0 Sensor ON = 0
Tab present = 1 sensor OFF = 1 Sensor OFF = 1

–4 : Mechanism mode position
[Common table of MN* and HD*]

Mechanism sensor information	Display	Deck operation mode	
Even number (0, 2, 4, 6, 8, A, C, E)	-0	Not established	
	-1	EJECT	EJECT position
	-2	EJECT-EJECT1	Intermodal position
	-3	EJECT1	EJECT1 position
	-4	EJECT1-EJECT2	Intermodal position
	-5	EJECT2	EJECT2 position
	-6	EJECT2-ULSTOP	Intermodal position
	-7	ULSTOP	ULSTOP position
	-8	ULSTOP-UPPER	Intermodal position
	-9	UPPER	Loading (unloading) tape
	-A	UPPER-ONSTOP	Intermodal position
	-B	ONSTOP	PLAY position
	-C	PLAY-FWD/SS	Intermodal position
	-D	FWD/SS	FWD (FWD Still/Slow) position
	-E	FWD/SS-REV	Intermodal position
	-F	REV	REV (REV Still/Slow) position
Odd number (1, 3, 5, 7, 9, B, D, F)	-0	REV-OFFSTOP	Intermodal position
	-1	OFFSTOP	Pinch roller OFF position
	-2	OFFSTOP-FFREWB	Intermodal position
	-3	FFREWB	FF/REW Brake position
	-4	FFREWB-FFREW	Intermodal position
	-5	FFREW	FF/REW position

1.3.6 EMG detail information <2>

The type of the cassette tape and the cassette tape winding position can be confirmed based on the figure in EMG detail information <2> .

[FDP/OSD display]

*5 :*6 :*7

*5 : Type of the cassette tape in use <1>
*6 : Winding position of the cassette tape in use
*7 : Type of the cassette tape in use <2> (Winding area)

Note:

- ***EMG detail information <2> is the reference information stored using the remaining tape detection function of the cassette tape. As a result, it may not identify cassette correctly when a special cassette tape is used or when the tape has variable thickness.***

***5 : Cassette tape type <1>**

Display	Cassette tape type <1>
00	Cassette type not identified
16	Large reel/small reel (T-0 to T-15/T-130 to T-210) not classified
82	Small reel, thick tape (T-120) identified/thin tape (T-140) identified
84	Large reel (T-0 to T-60) identified
92	Small reel, thick tape (T-130) identified/thin tape (T-160 to T-210) identified
93	Small reel, thick tape/C cassette (T-0 to T-100/C cassette) not classified
C3	Small reel, thick tape/C cassette (T-0 to T-100/C cassette) being classified
D3	Small reel, thick tape/C cassette (T-0 to T-100/C cassette) being classified
E1	C cassette, thick tape (TC-10 to TC-20) identified
E2	Small reel, thick tape (T-0 to T-100) identified
E9	C cassette, thin tape (TC-30 to TC-40) identified
F1	C cassette, thick tape/thin tape (TC-10 to TC-40) not classified

Notes:

- ***Cassette tape type <1> is identified a few times during mode transition and the identification count is variable depending on the cassette tape type. If an EMG occurs in the middle of identification, the cassette tape type may not be able to be identified.***
- ***If other value than those listed in the above table is displayed, the cassette tape type is not identified.***

***6 : Cassette tape winding position**

The cassette tape winding position at the moment of EMG is displayed by dividing the entire tape (from the beginning to the end) in 21 sections using a hex number from “00” to “14”.

“00” : End of winding
“14” : Beginning of winding
“FF” : Tape position not identified

***7 : Cassette tape type <2> (Winding area)**

Display	Cassette tape type <2>		(Reference) Word data (Beginning) (End)
00	Cassette type not identified		
04 - 08	C cassette, thick tape	TC-10	(0497 - 0506) (0732 - 0858)
05 - 06	Small reel, thick tape	T-20	(05A9 - 0661)
05 - 0C	C cassette, thick tape	TC-20P	(0599 - 05FF) (0AA1 - 0C07)
06 - 0C	C cassette, thin tape	TC-40	(0623 - 063D) (0C41 - 0CC3)
06 - 0C	C cassette, thin tape	TC-30	(0611 - 0638) (0C0C - 0CB2)
07 - 08	Small reel, thick tape	T-40	(07CC - 08E5)
09 - 0B	Small reel, thick tape	T-60	(09FD - 0B78)
0C - 0D	Small reel, thick tape	T-80(DF-160)	(0C20 - 0DFC)
0D - 0F	Small reel, thick tape	T-90(DF-180)	(0D31 - 0F3E)
0E - 10	Small reel, thick tape	T-100	(0E43 - 107F)
10 - 12	Small reel, thin tape	T-140	(10E1 - 120C)
10 - 13	Small reel, thick tape	T-120(DF-240)	(1073 - 1313)
11 - 14	Small reel, thick tape	T-130	(1185 - 1429)
12 - 14	Small reel, thin tape	T-160	(12D3 - 141F)
13 - 14	Small reel, thin tape	T-210(DF-420)	(1373 - 14C3)
13 - 14	Small reel, thin tape	T-180(DF-360)	(1357 - 14C0)
13 - 14	Small reel, thin tape	T-168	(1395 - 14EE)
13 - 14	Small reel, thick tape	DF-300	(13A8 - 14CE)
15 - 16	Large reel	T-20	(1536 - 1618)
16 - 17	Large reel	T-30	(1647 - 175A)
17 - 18	Large reel	T-40	(1759 - 189C)
19 - 1B	Large reel	T-60	(1989 - 1B2F)

Note:

- ***The values of cassette tape type <2> in the above table are typical values with representative cassette tapes.***

1.3.7 EMG detail information <3>

Three deck operation modes preceding the deck operation mode in which the EMG occurs may be confirmed based on the figures in the EMG information detail <3>. For the contents of the displayed information, see the table "Deck operation mode" in section "1.3.5 EMG detail information <1>".

1.4 Service position

This unit has been designed so that the Mechanism and Main board assemblies can be removed together from the chassis assembly. Before diagnosing or servicing the circuit boards, take out the major parts from the chassis assembly.

1.4.1 How to set the “Service position”

(1) Refer to the disassembly procedure and perform the disassembly of the major parts before removing the Mechanism assembly.
(2) Remove the screws that fix the Mechanism assembly to the Chassis assembly. If any other screws are used to fix the boards, remove them also.
(3) Remove the combined Mechanism and Main board assemblies.
(4) If any other major parts are used, remove them also.
(5) Connect the wires and connectors of the major parts that have been removed in steps (1) to (4). (Refer to Fig. 1-2-2d.)
(6) Place the combined Mechanism, Main board and other board assemblies upside down.
(7) Insert the power cord plug into the power outlet and then proceed with the diagnostics and servicing of the board assembly.

Notes:

- ***Before inserting the power cord plug into the power outlet, make sure that none of the electrical parts are able to short-circuit between the workbench and the board assembly.***
- ***For the disassembly procedure of the major parts and details of the precautions to be taken, see “1.2 Removing the major parts”.***
- ***If there are wire connections from the Main board and Mechanism assemblies to the other major parts, be sure to remove them (including wires connected to the major parts) first before performing step (2).***
- ***When carrying out diagnosis and repair of the Main board assembly in the “Service position”, be sure to ground both the Main board and Mechanism assemblies. If they are improperly grounded, there may be noise on the playback picture or FDP counter display may move even when the mechanism is kept in an inoperative status.***
- ***In order to diagnose the playback or recording of the cassette tape, set the Mechanism assembly to the required mode before placing it upside down. If the mechanism mode is changed (including ejection) while it is in an upside down position the tape inside may be damaged.***
- ***For some models, the mechanism and board assemblies are attached by connectors only. When carrying out a diagnosis or repair of the boards in the “Service position”, make sure that the connectors are not disconnected.***

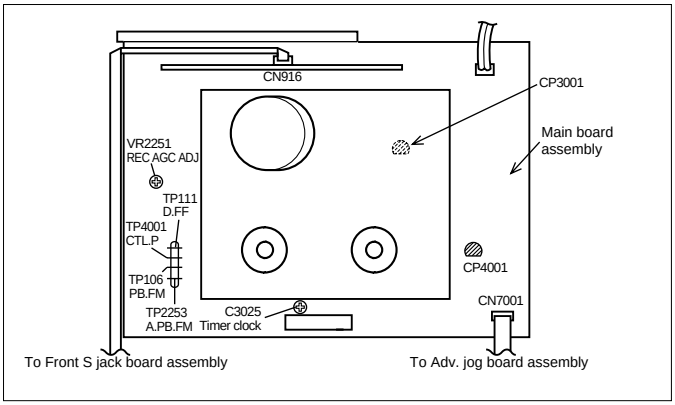


Fig. 1-4-1a

1.5 Jig RCU mode

This unit uses the following two modes for receiving remote control codes.

1) User RCU mode : Ordinary mode for use by the user.
2) Jig RCU mode : Mode for use in production and servicing.

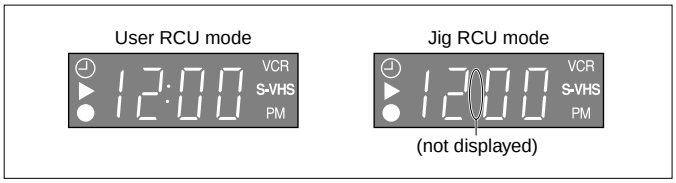


Fig. 1-5-1a

When using the Jig RCU, it is required to set the VCR to the Jig RCU mode (the mode in which codes from the Jig RCU can be received). As both of the above two modes are stored in the EEPROM, it is required to set the VCR back to the User RCU mode each time that an adjustment is made or to check that the necessary operations have been completed. These modes can be set by the operations described below.

Note:

- ***Confirm the RCU mode when exchanged parts. Since some SERVICE PARTS sets the VCR to the Jig RCU mode as initial setting.***

1.5.1 Setting the Jig RCU mode

(1) Unplug the power cord plug from the power outlet.
(2) Press and hold the “REC” and “PAUSE” buttons on the VCR simultaneously, while plugging the power cord plug into the power outlet.
When the VCR is set to the Jig RCU mode, the symbols (“ : ”) in the time display of the FDP are turned off.

1.5.2 Setting the User RCU mode

(1) Turn off the power.
(2) Press the “REC” and “PAUSE” buttons of the VCR simultaneously. Alternatively, transmit the code “80” from the Jig RCU.

1.6 Mechanism service mode

This model has a unique function to enter the mechanism into every operation mode without loading of any cassette tape. This function is called the “Mechanism service mode”.

1.6.1 How to set the “Mechanism service mode”

(1) Set the VCR to the Jig RCU mode (the mode in which codes from the Jig RCU can be received).
(2) Transmit the code “E5” from the Jig RCU.
(3) Release the lug of the Cassette holder and then slide the Cassette holder toward the direction where the Cassette holder is loaded by manually.
(4) The cassette holder lowers and, when the loading has completed, the mechanism enters the desired mode.
When the VCR is set to the Mechanism service mode, the symbols (“Timer”) in the FDP (LED) are blinked.

1.6.2 How to exit from the "Mechanism service mode"

(1) Unplug the power cord plug from the power outlet.

1.7 Maintenance and inspection

1.7.1 Cleaning

Regular cleaning of the transport system parts is desirable but practically impossible. So make it a rule to carry out cleaning of the tape transport system whenever the machine is serviced.
When the video head, tape guide and/or brush get soiled, the playback picture may appear inferior or at worst disappear, resulting in possible tape damage.

Note:

- ***Absolutely avoid sweeping the upper drum vertically as this will cause damage to the video head.***

(1) When cleaning the upper drum (especially the video head), soak a piece of closely woven cloth with alcohol and while holding the cloth onto the upper drum by the fingers, turn the upper drum counterclockwise.
(2) To clean the parts of the tape transport system other than the upper drum, use a piece of closely woven cloth or a cotton swab soaked with alcohol.
(3) After cleaning, make sure that the cleaned parts are completely dry before using the cassette tape.

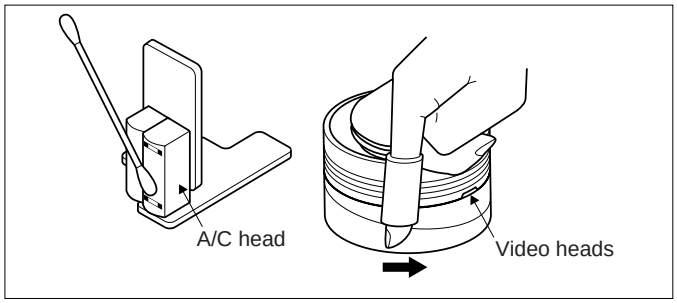


Fig. 1-7-1a

1.7.2 Lubrication

With no need for periodical lubrication, you have only to lubricate new parts after replacement. If any oil or grease on contact parts is soiled, wipe it off and newly lubricate the parts.

Note:

- ***See the "mechanism assembly" diagram of the "parts list" for the lubricating or greasing spots, and for the types of oil or grease to be used.***

1.7.3 Suggested servicing schedule for main components

The following table indicates the suggested period for such service measures as cleaning, lubrication and replacement. In practice, the indicated periods will vary widely according to environmental and usage conditions. However, the indicated components should be inspected when a set is brought for service and the maintenance work performed if necessary. Also note that rubber parts may deform in time, even if the set is not used.

System	Parts name	Operation hours	
		1000H	2000H
Tape transport	Drum assembly	C,X	X
	A/C head	C,X	C,X
	Pinch roller arm assembly	C	C
	Full erase head	C	C
	Tension arm assembly	C	C
	Capstan motor (Shaft)	C	C
	Guide arm assembly	C	C
Drive	Capstan motor		X
	Capstan brake assembly		X
	Main brake assembly		X
	Belt (Capstan)	X	X
	Loading motor		X
	Clutch unit		X
	Worm gear		X
	Control plate		X
Other	Rotary encoder		X

C : Cleaning
X : Inspection or Replacement if necessary

1.8 Servicing items related to video navigation

The video navigation function built into this unit works by storing the video navigation data in the internal EEPROM and writing data in the cassette tape simultaneously.
The video navigation data stored in the EEPROM cannot be copied to another EEPROM. Therefore, when the circuit board mounting the EEPROM is replaced, the original EEPROM should be mounted on the new board. This will make the user's video navigation data usable with the new circuit board after replacement. However, the user's data cannot be restored if the EEPROM on the original circuit board is damaged.

Note:

- ***If the circuit board mounting the EEPROM or the EEPROM alone has been replaced, it is required to perform confirmation/re-adjustment on all of the adjustment items using the EVR as well as those which are adjusted by transmitting adjustment codes from the Jig RCU.***

SECTION 3
ADJUSTMENT

3.1 Before adjustment

3.1.1 Precaution

- ***The adjustments of this unit include the mechanism compatibility and electrical adjustments. During the performance of this work, be sure to observe the precautions for each type of adjustment.***
- ***If there is a reference to a signal input method in the signal column of the adjustment chart, "Ext. S-input" means the Y/C separated video signal and "Ext. input" means the composite video signal input.***
- ***Unless otherwise specified, all measuring points and adjustment parts are located on the Main board.***

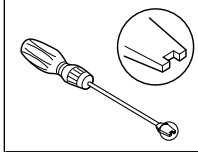
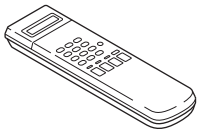
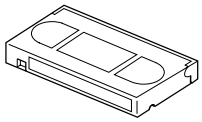
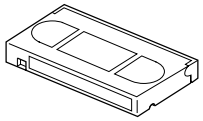
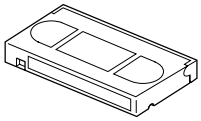
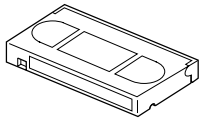
3.1.2 Required test equipments

- Color (colour) television or monitor
- Oscilloscope: wide-band, dual-trace, triggered delayed sweep
- Signal generator: RF / IF sweep / marker
- Signal generator: stairstep, color (colour) bar [NTSC]
- Recording tape
- Digit-key remote controller(provided)

3.1.3 Required adjustment tools

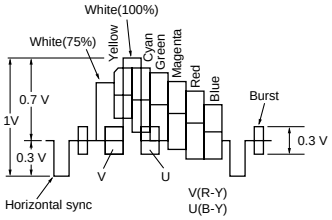
○ : Used — : Not used

	Machanism compatibility adjustment	Electrical adjustment
Roller driver	○	–
Jig RCU	–	○
Back tension cassette gauge	○	–
Alignment tape(MHPE)	○	○
Alignment tape(MHPE-L)	○	○
Alignment tape(MHP-L)	–	○

Roller driver PTU94002	Jig RCU PTU94023B	Back tension cassette gauge PUJ48076-2
		
Alignment tape (SP, stairstep, PAL) MHPE	Alignment tape (LP, stairstep, PAL) MHPE-L	Alignment tape (EP, stairstep, NTSC) MHP-L
		

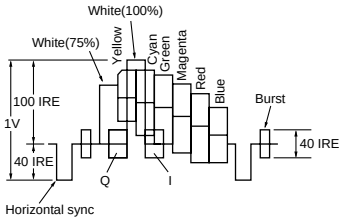
3.1.4 Color (colour) bar signal, color (colour) bar pattern

• Color(colour) bar signal [PAL]

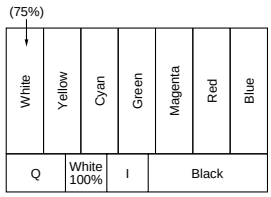


• Color(colour) bar pattern [PAL]

• Color(colour) bar signal [NTSC]



• Color(colour) bar pattern [NTSC]



3.1.5 Switch settings

When adjusting this unit, set the VCR mode and switches as described below.

- When using the Jig RCU, it is required to set the VCR to the Jig RCU mode (the mode in which codes from the Jig RCU can be received). (See "section 1 disassembly".)

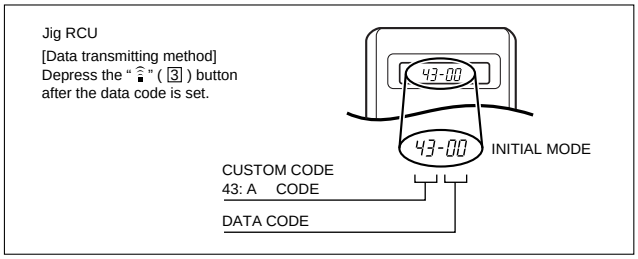


Fig. 3-1-5a Jig RCU [PTU94023B]

- Set the switches as shown below unless otherwise specified on the relevant adjustment chart. The switches that are not listed below can be set as desired.
  If the VCR is not equipped with the functions detailed below, setup is not required.

AUTO PICTURE/VIDEO CALIBRATION/ B.E.S.T./D.S.P.C.	OFF
PICTURE CONTROL/SMART PICTURE	NORMAL/NATURAL
VIDEO STABILIZER	OFF
TBC	ON
Digital 3R	ON
VIDEO NAVIGATION/TAPE MANAGER	OFF
BLUE BACK	OFF

3.1.6 Manual tracking mode (Auto tracking ON/OFF) setting

(1) In order to set to the manual tracking mode during tape playback, press the “SP/EP(LP)” button on the remote control unit.
  • Each press of the button switches the auto tracking ON or OFF.
  • When the auto tracking is OFF, the monitor screen displays “AT: OFF”.
  • When the manual tracking mode is set, the tracking is placed at the center position.
(2) Press “channel +/-” to adjust the tracking manually.

3.1.7 EVR adjustment

Some of the adjustments require the adjustment performed by the EVR system. The main unit have EEPROMs for storing the EVR adjustment data and user setups.

Notes:

- ***In the EVR adjustment mode, the value is varied with the channel buttons (+, –). The adjusted data is stored when the setting mode changes (from PB to STOP, when the tape speed is changed, etc.). Take care to identify the current mode of each adjustment item when making an adjustment.***
- ***When changing the address setting in the EVR adjustment mode, use the Jig RCU or the remote controller having numeric keypad with which a numeric code can be directly input.***
  The remote control code of the Jig RCU corresponds to each of the digit keys on the remote controller as follows.

Digit-key	0	1	2	3	4	5	6	7	8	9
Code	20	21	22	23	24	25	26	27	28	29

- ***As the counter indication and remaining tape indication are not displayed FDP during the EVR adjustment mode, check them on the TV monitor screen.***
- ***When performing the EVR adjustment, confirm that the FDP indication is changed to the EVR mode, as shown below.***

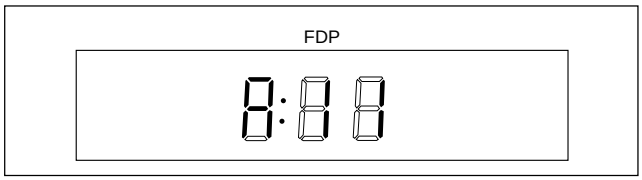


Fig. 3-1-7a EVR mode

3.2 Mechanism compatibility adjustment

Notes:

- ***Although compatibility adjustment is very important, it is not necessary to perform this as part of the normal servicing work. It will be required when you have replaced the A/C head, drum assembly or any part of the tape transport system.***
- ***To prevent damaging the alignment tape in the compatibility adjustment, prepare a cassette tape (for self-recording/playback), perform a test on it by transporting it and making sure that the tape is not bent by the tape transport mechanisms such as in the guide rollers.(See Fig.3-2-2a.)***

3.2.1 Tension pole position

Notes:

- ***This adjustment must be performed every time the tension band is replaced.***

Signal	(A)	• Back tension cassette gauge [PUJ48076-2]
Mode	(B1)	• PB
	(B2)	• Eject end
Adjustment part	(F)	• Adjust pin [Mechansim assembly]
Specified value	(G)	• 25 - 51 gf•cm (2.45 – 5 × 10^{-3} Nm)

(1) Play back the back tension cassette gauge (A).
(2) Check that the indicated value on the left side gauge is within the specified value (G).
(3) If the indicated value is not within the specified value (G), perform the adjustment in a following procedure.(See Fig.3-2-1a.)
  1) Remove the top frame, cassette holder and side frames (L/R) all together. (See “section 2 mecha-nism”.)
  2) Rotate the loading motor gear to move the control plate so that the triangular stamping to the left of the “P” stamping is aligned with the stamping (a) on the main deck. This positioning is mode (B1).
  3) Adjust by turning the adjustment pin so that the tip of the tension arm is aligned with the stamping (b) on the main deck.
  4) Rotate the reel disk (S) by about one turn clockwise and make sure that the round hole of the adjustment pin is located in the “OK” range.
    If it is outside this range, restart the adjustment from the beginning.
  After completion of the adjustment, rotate the loading gear motor to return it to the mode (B2) position.

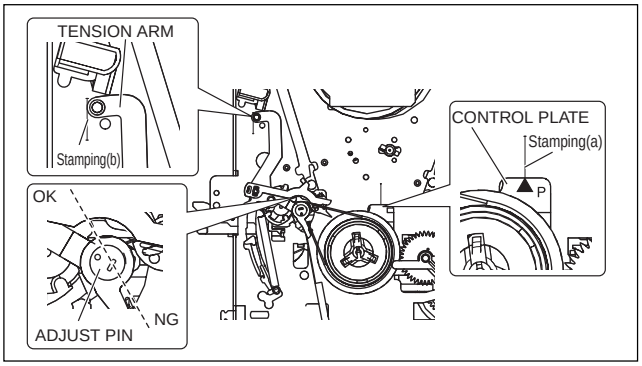


Fig. 3-2-1a

3.2.2 FM waveform linearity

Signal	(A1) (A2)	• Alignment tape(SP, stairstep, PAL) [MHPE] • Alignment tape(LP, stairstep, PAL) [MHPE-L]
Mode	(B)	• PB
Equipment	(C)	• Oscilloscope
Measuring point	(D)	• TP106 (PB. FM)
External trigger	(E)	• TP111 (D.FF)
Adjustment part	(F)	• Guide roller [Mechanism assembly]
Specified value	(G)	• Flat V.PB FM waveform
Adjustment tool	(H)	• Roller driver [PTU94002]

(1) Play back the alignment tape (A1).
(2) Apply the external trigger signal to D.FF (E), to observe the V.PB FM waveform at the measuring point (D).
(3) Set the VCR to the manual tracking mode.
(4) Make sure that there is no significant level drop of the V.PB FM waveform caused by the tracking operation, with its generally parallel and linear variation ensured. Perform the following adjustments when required. (See Fig. 3-2-2b.)
(5) Reduce the V.PB FM waveform by the tracking operation. If a drop in level is found on the left side, turn the guide roller of the pole base assembly (supply side) with the roller driver to make the V.PB FM waveform linear.
If a drop in level is on the right side, likewise turn the guide roller of the pole base assembly (take-up side) with the roller driver to make it linear. (See Fig. 3-2-2b.)
(6) Make sure that the V.PB FM waveform varies in parallel and linearly with the tracking operation again. When required, perform fine-adjustment of the guide roller of the pole base assembly (supply or take-up side).
(7) Unload the cassette tape once, play back the alignment tape (A1) again and confirm the V.PB FM waveform.
(8) After adjustment, confirm that the tape wrinkling does not occur at the roller upper or lower limits. (See Fig. 3-2-2a.)

[Perform adjustment step (9) only for the models equipped with SP mode and EP (or LP) mode.]

(9) Repeat steps (1) to (8) by using the alignment tape (A2).

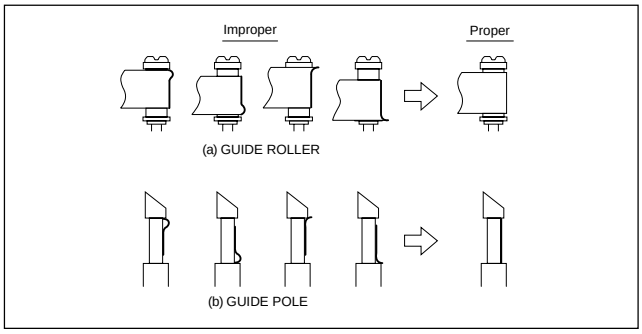


Fig. 3-2-2a

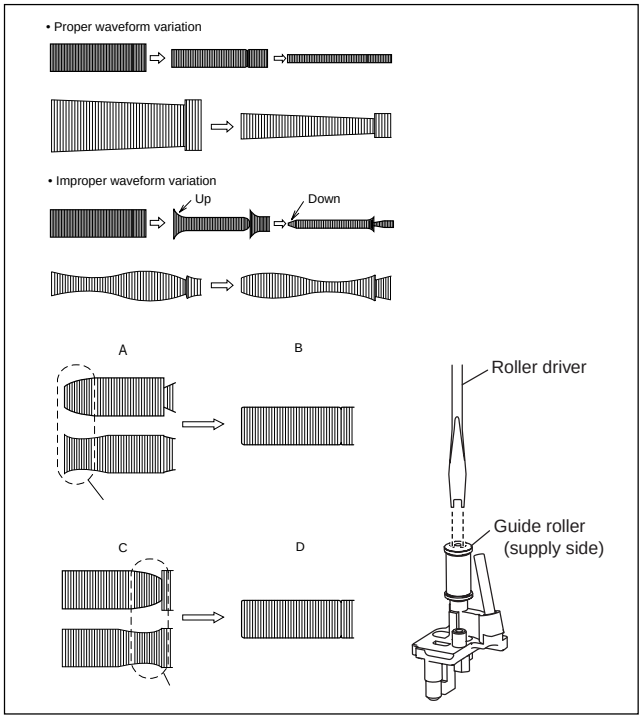


Fig. 3-2-2b

3.2.3 Height and tilt of the A/C head

Note:

• Set a temporary level of the height of the A/C head in advance to make the adjustment easier after the A/C head has been replaced. (See "section 2 mechanism".)

Signal	(A)	• Alignment tape(SP, stairstep, PAL) [MHPE]
Mode	(B)	• PB
Equipment	(C)	• Oscilloscope
Measuring point	(D1) (D2)	• AUDIO OUT terminal • TP4001 (CTL. P)
External trigger	(E)	• TP111 (D.FF)
Adjustment part	(F)	• A/C head [Mechanism assembly]
Specified value	(G)	• Maximum waveform

(1) Play back the alignment tape (A).
(2) Apply the external trigger signal to D.FF (E), to observe the AUDIO OUT waveform and Control pulse waveform at the measuring points (D1) and (D2) in the ALT mode.
(3) Set the VCR to the manual tracking mode.
(4) Adjust the AUDIO OUT waveform and Control pulse waveform by turning the screws (1), (2) and (3) little by little until both waveforms reach maximum. The screw (1) and (3) are for adjustment of tilt and the screw (2) for azimuth.

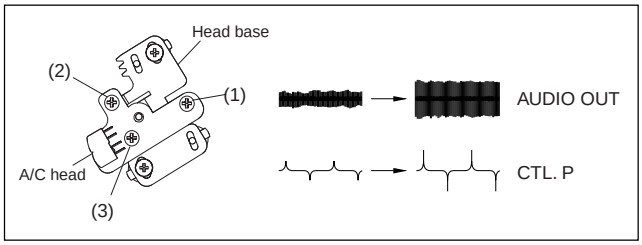


Fig. 3-2-3a

3.2.4 A/C head phase (X-value)

Signal	(A1) (A2)	• Alignment tape(SP, stairstep, PAL) [MHPE] • Alignment tape(LP, stairstep, PAL) [MHPE-L]
Mode	(B)	• PB
Equipment	(C)	• Oscilloscope
Measuring point	(D)	• TP106 (PB. FM)
External trigger	(E)	• TP111 (D.FF)
Adjustment part	(F)	• A/C head base [Mechanism assembly]
Specified value	(G)	• Maximum V.PB FM waveform
Adjustment tool	(H)	• Roller driver [PTU94002]

(1) Play back the alignment tape (A1).
(2) Apply the external trigger signal to D.FF (E), to observe the V.PB FM waveform at the measuring point (D).
(3) Set the VCR to the manual tracking mode.
(4) Loosen the screws (4) and (5), then set the Roller driver to the innermost projected part of the A/C head. (See Fig. 3-2-4a.)
(5) Rotate the roller driver so that the A/C head comes closest to the capstan. From there, move the A/C head back gradually toward the drum until the point where the FM waveform is maximized for the second time, and then tighten the screws (4) and (5) temporarily.
(6) Play an alignment tape (A2) and set to the manual-tracking mode.
(7) Fine-adjust A/C head base position to maximize the FM waveform, and then tighten the screws (4) and (5) firmly.
(8) Play alignment tapes (A1) and (A2) and confirm that the FM waveforms are maximized when the tracking is at the center position.

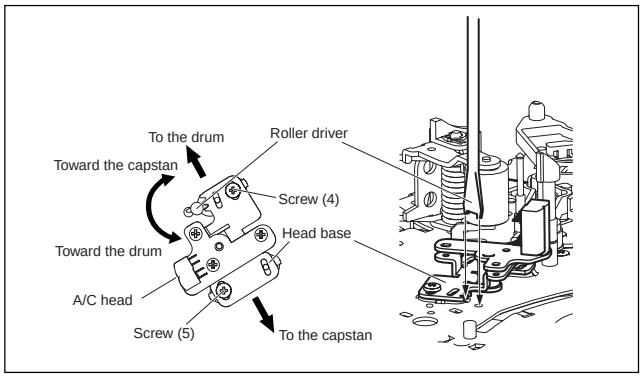


Fig. 3-2-4a

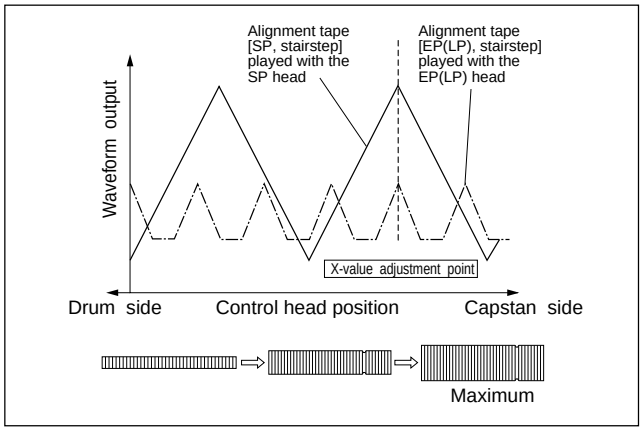


Fig. 3-2-4b

3.3 Electrical adjustment

Note:
The following adjustment procedures are not only necessary after replacement of consumable mechanical parts or board assemblies, but are also provided as references to be referred to when servicing the electrical circuitry.
In case of trouble with the electrical circuitry, always begin a service by identifying the defective points by using the measuring instruments as described in the following electrical adjustment procedures. After this, proceed to the repair, replacement and/or adjustment. If the required measuring instruments are not available in the field, do not change the adjustment parts (variable resistor, etc.) carelessly.

3.3.1 Servo circuit

3.3.1.1 Switching point

Signal	(A1) (A2) (A3)	• Stairstep signal • Alignment tape (LP, stairstep, PAL) [MHPE-L] • Alignment tape (EP, stairstep, NTSC) [MHP-L]
Mode	(B)	• PB • TBC:OFF
Equipment	(C)	• Oscilloscope
Measuring point	(D1) (D2)	• VIDEO OUT terminal (75Ω terminated) • TP106 (PB. FM)
External trigger	(E)	• TP111 (D.FF)
Adjustment part	(F)	• Jig RCU: Code “51” or “52”
Specified value	(G) (G)	• 7.5 ±0.5 H • 8.0 ±0.5 H (PAL) • 7.5 ±0.5 H (NTSC)
Adjustment tool	(H)	• Jig RCU [PTU94023B]

(1) Play back the signal (A1) of the alignment tape (A2).
(2) Apply the external trigger signal to D. FF (E) to observe the VIDEO OUT waveform and V. PB FM waveform at the measuring points (D1) and (D2).
(3) Set the VCR to the manual tracking mode.
(4) Adjust tracking so that the V. PB FM waveform becomes maximum.
(5) Transmit the code (F) from the Jig RCU to adjust so that the trigger point of the VIDEO OUT waveform is changed from the trailing edge of the V. sync signal becomes the specified value (G1).
(6) Set the VCR to the stop mode or eject mode.
(7) Play back the signal (A1) of the alignment tape (A3).
(8) Repeat steps (2) to (6).

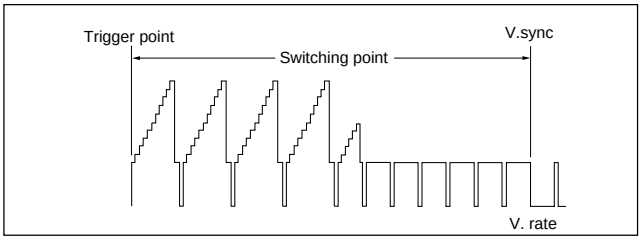


Fig. 3-3-1-1a Switching point

3.2.2 Slow tracking preset

Signal	(A1) (A2) (A3)	• Ext. input • Color (colour) bar signal [PAL] • Color (colour) bar signal [NTSC]
Mode (Notes)	(B1) (B2) (B3) (B4)	• VHS SP • VHS LP (PAL) • VHS SP • VHS EP (NTSC)
Measuring point	(D)	• TV-Monitor
Adjustment part	(F)	• Jig RCU: Code “71“ or “72”
Specified value	(G)	• Minimum noise
Adjustment tool	(H)	• Jig RCU [PTU94023B]

(1) Record the signal (A2) in the mode (B1), and play back the recorded signal.
(2) Set the VCR to the manual tracking mode.
(3) Set the VCR to the FWD slow (+1/6x) mode.
(4) Transmit the code (F) from the Jig RCU to adjust so that the noise bar becomes the specified value (G) on the TV monitor in the slow mode.
(5) Set the VCR to the Stop mode.
(6) Confirm that the noise bar is (G) on the TV monitor in the slow mode.
(7) Repeat steps (3) to (6) in the REV slow (–1/6x) mode.
(8) Repeat steps (1) to (7) in the mode (B2).
[For HR-S8960AG]
(9) Record the signal (A3) in the mode (B3), and play back the recorded signal.
(10) Repeat steps (2) to (7).
(11) Repeat steps (9) and (10) in the mode (B4)

Note:

- ***For FWD slow (+1/6x) playback, transmit the code “08” from the Jig RCU to enter the slow playback mode, and transmit the code “D0” for REV slow (–1/6x) mode.***

3.3.2 Video circuit

3.3.2.1 EE Y/PB Y (S-VHS/VHS) level

Signal	(A1) (A2) (A3)	• Ext. S-input • Ext. input • Color (colour) bar signal [PAL]
Mode	(B1) (B2) (B3)	• EE SP • S-VHS SP • VHS SP
Equipment	(C)	• Oscilloscope
Measuring point	(D)	• Y OUT terminal (75Ω terminated)
EVR mode EVR address	(F1) (F2) (F3) (F4)	• Jig code “57” • A : 11 • Jig code “21” twice • Jig code “18” or “19” (Channel +/-)
Specified value	(G)	• 1.00 ± 0.05 Vp-p
Adjustment tool	(H)	• Jig RCU [PTU94023B]

(1) Input the signal (A3) from the input point (A1).
(2) Set the VCR to the mode (B1).
(3) Observe the Y OUT waveform at the measuring point (D).
(4) Set the VCR to the EVR mode by transmitting the code (F1) from the Jig RCU.
(5) Set the EVR address to (F2) by transmitting the code (F3) from the Jig RCU.
(6) Transmit the code (F4) from the Jig RCU to adjust so that the Y level of the Y OUT waveform becomes the specified value (G).
(7) Release the EVR mode of the VCR by transmitting the code (F1) from the Jig RCU again. (When the EVR mode is released, the adjusted data is memorized.)
(8) Input the signal (A3) from the input point (A2).
(9) Repeat steps (3) to (7) in the mode (B1).
(10) Record the signal (A3) in the mode (B2), and play back the recorded signal.
(11) Set the VCR to the manual tracking mode.
(12) Repeat steps (3) to (7) in the mode (B2).
(13) Record the signal (A3) in the mode (B3), and play back the recorded signal.
(14) Set the VCR to the manual tracking mode.
(15) Repeat steps (3) to (7) in the mode (B3).

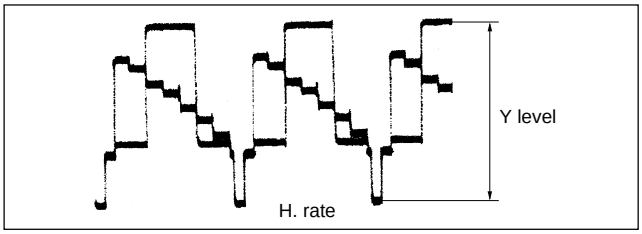


Fig. 3-3-2-1a EE/PB Y level

3.3.3 Audio circuit

Notes:

- ***GND (Ground) should be taken from the Tuner shield case.***

3.3.3.1 Audio REC FM

Signal	(A1) (A2) (A3)	• Ext. input • Audio: No signal • Video: Color (colour) bar signal [PAL]
Mode	(B)	• S-VHS LP
Equipment	(C)	• Oscilloscope
Measuring point	(D)	• TP2253 (A. PB. FM)
External trigger	(E)	• TP111 (D.FF)
Adjustment part	(F)	• VR2251
Specified value	(G1) (G2)	• 600 ± 100 mVp-p • More than 400 mVp-p

(1) Apply the external trigger signal to D.FF (E) to observe the Audio PB FM waveform at the measuring point (D).
(2) Record the signal (A3) with no audio signal input in the mode (B), and play back the recorded signal.
(3) Set the VCR to the manual tracking mode.
(4) If the A.PB FM level is not within the specified value (G1), perform the adjustment in a following procedure.
(5) Adjust the Adjustment part (F) so that the A. PB FM level of the higher channel level becomes the specified value (G1). (Adjust before recording, then confirm it by playing back.)
(6) If the specified value (G1) is not obtained, adjust the Adjustment part (F) so that the waveform level of the lower channel level becomes the specified value (G2). (Adjust before recording, then confirm it by playing back.)

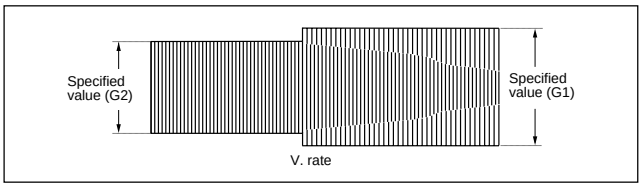


Fig. 3-3-3-1a Audio REC FM

3.3.4 Syscon circuit [HR-S8960EX, HR-S8960AG]

Note:

- ***When perform this adjustment, remove the Mechanism assembly.***

3.3.4.1 Timer clock

Signal	(A)	• No signal
Mode	(B)	• EE
Equipment	(C)	• Frequency counter
Measuring point Short point	(D1) (D2) (D3)	• IC3001 pin 61 • IC3001 pin 24 • C3026 + and –
Adjustment part	(F)	• C3025 (TIMER CLOCK)
Specified value	(G)	• 1024.008 ± 0.001 Hz (976.5549 ± 0.0010 µsec)

(1) Connect the frequency counter to the measuring point (D1).
(2) Connect the short wire between the short point (D2) and Vcc (5V).
(3) Short the leads of capacitor (D3) once in order to reset the microprocessor of the SYSCON.
(4) Disconnect the short wire between the short point (D2) and Vcc then connect it again.
(5) Adjust the Adjustment part (F) so that the output frequency becomes the specified value (G).

JVC

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SECTION 4
CHARTS AND DIAGRAMS

NOTES OF SCHEMATIC DIAGRAM

Safety precautions
The Components identified by the symbol ⚠ are critical for safety. For continued safety, replace safety critical components only with manufacturer's recommended parts.

1. Units of components on the schematic diagram

Unless otherwise specified.

1) All resistance values are in ohm. 1/6 W, 1/8 W (refer to parts list).
   Chip resistors are 1/16 W.
   K: KΩ (1000Ω), M: MΩ (1000KΩ)
2) All capacitance values are in μF, (P: PF).
3) All inductance values are in μH, (m: mH).
4) All diodes are 1SS133, MA165 or 1N4148M (refer to parts list).

Note: The Parts Number, value and rated voltage etc. in the Schematic Diagram are for references only. When replacing the parts, refer to the Parts List.

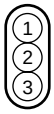
2. Indications of control voltage

AUX : Active at high.

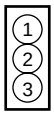
$\overline{\text{AUX}}$ or AUX(L) : Active at low.

3. Interpreting Connector indications

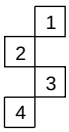
Removable connector



Wire soldered directly on board



Non-removable Board connector



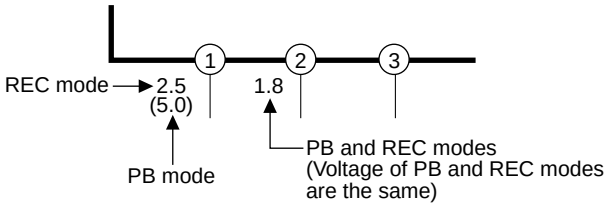
Board to Board

Connected pattern on board
The arrows indicate signal path

Note: For the destination of each signal and further line connections that are cut off from the diagram, refer to "BOARD INTERCONNECTIONS"

4. Voltage measurement

1) Regulator (DC/DC CONV) circuits
   REC : Colour bar signal.
   PB : Alignment tape (Colour bar).
   — : Unmeasurable or unnecessary to measure.
4) Indication on schematic diagram
   Voltage Indications for REC and PB mode on the schematic diagram are as shown below.

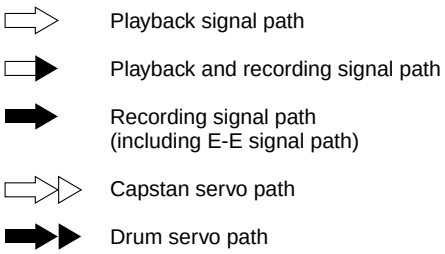


Note: If the voltages are not indicated on the schematic diagram, refer to the voltage charts.

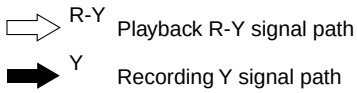
5. Signal path Symbols

The arrows indicate the signal path as follows.

NOTE : The arrow is DVC unique object.

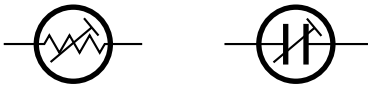


(Example)



6. Indication of the parts for adjustments

The parts for the adjustments are surrounded with the circle as shown below.



7. Indication of the parts not mounted on the circuit board

"OPEN" is indicated by the parts not mounted on the circuit board.

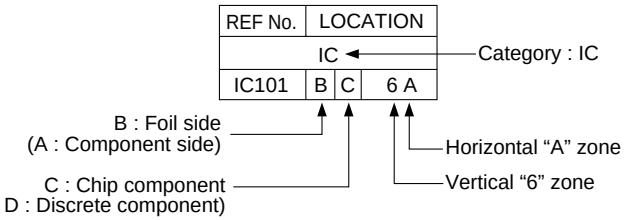
CIRCUIT BOARD NOTES

1. Foil and Component sides

1) Foil side (B side) :
   Parts on the foil side seen from foil face (pattern face) are indicated.
2) Component side (A side) :
   Parts on the component side seen from component face (parts face) indicated.

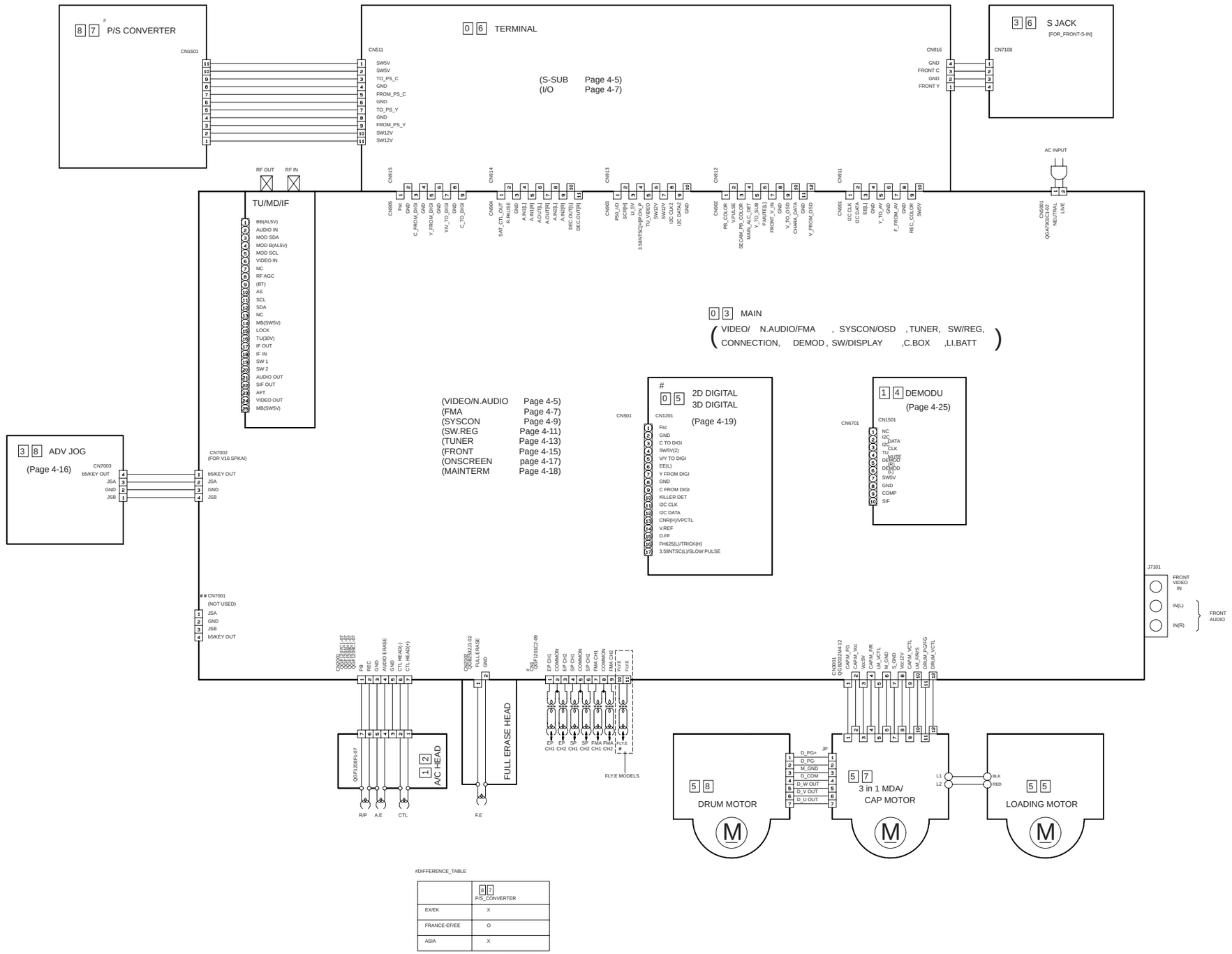
2. Parts location guides

Parts location are indicated by guide scale on the circuit board.



Note: For general information in service manual, please refer to the Service Manual of GENERAL INFORMATION Edition 4 No. 82054D (January 1994).

4.1 BOARD INTERCONNECTIONS



#DIFFERENCE_TABLE

	8 7 P/S_CONVERTER
EX/EK	X
FRANCE-EF/EE	O
ASIA	X

[SECAM->PAL_CONVERTER]

NO	NAME
96	
93	
92	
91	
87	P/S CONVERTER
76	
58	DRUM MOTOR
57	3in1 MDA/CAP.MOTOR
55	LOADING MOTOR
38	ADV.JOG
36	S JACK
14	DEMOD
12	A/C HEAD
09	
05	2D/3D DIGITAL
03	MAIN

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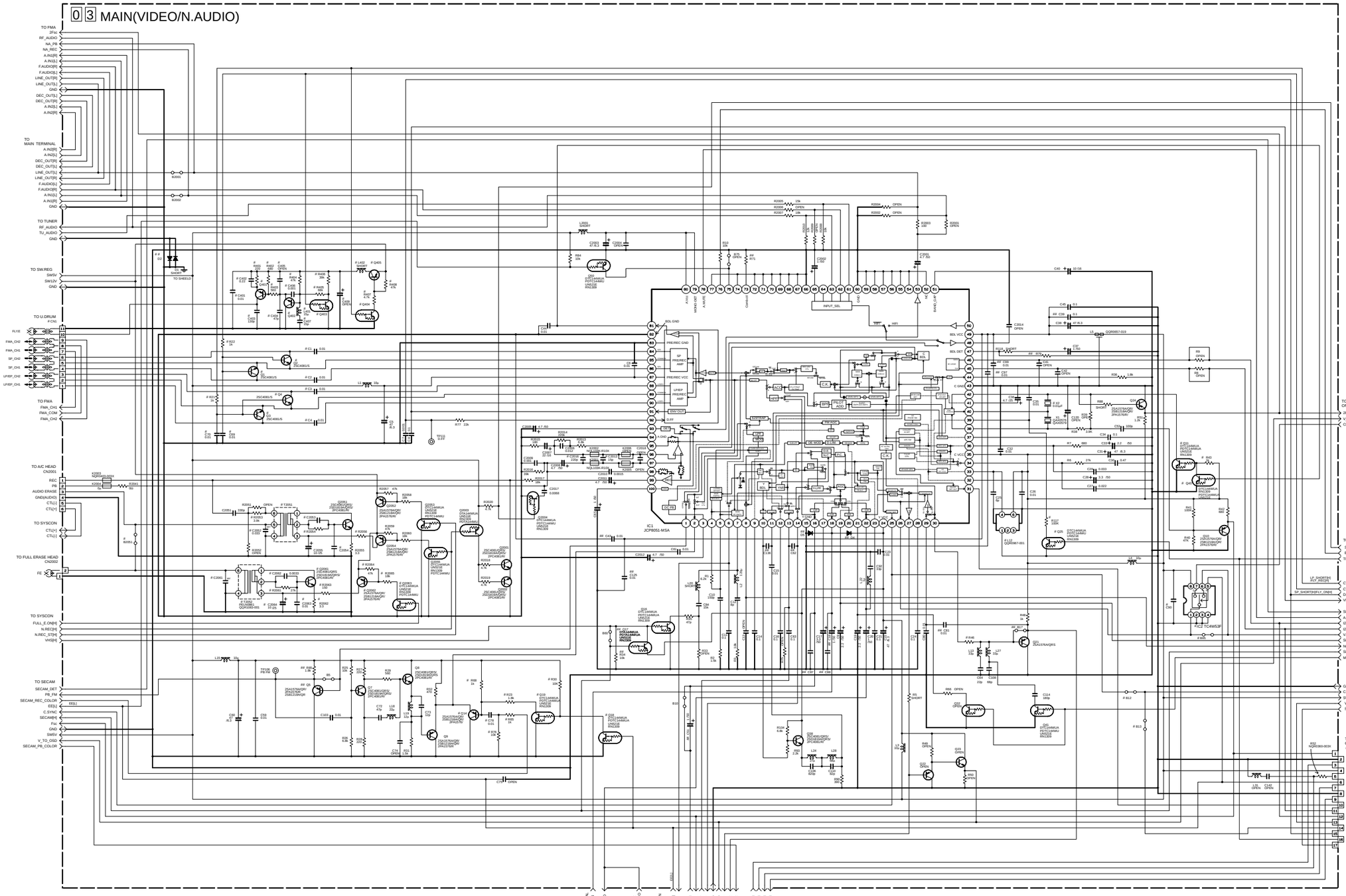
4.2 MAIN(VIDEO/N.AUDIO) SCHEMATIC DIAGRAM



#DEFFERENCE TABLE

SP LINEUP	CN1	FLYERASE	H.SHORT	PRE.IN	PAL_EP TRICK		C.TRAP	3D			for_MS	AUDIO.DUBBING								
		R401-R408 Q401-Q405 C401-C407 L401,L402 C409	Q1-Q4 "C99,C170" "R21,R22"	C1-C4	R43 Q11 Q40	R117 Q25	R46	B12	B13	X2 0.01uF	"Q14,Q18,Q19" "R23,R30R60" "R68,R75,C79"	Function	T2051	B2051	R2053	R2054	R2056	C2053	C2054	C2061	Q2061-Q2063 T2052 IC2052 R2065-R2065 C2062-C2064
S8960EX,S8965EK(S25)	1-11	○	×	0.1	×	○	470	×	○	○	×	○	PEILN0860	×	3.9k	15k	100	0.0033	0.01	0.033	○
S8960AG(S25)	1-11	○	×	0.1	×	○	470	×	○	○	×	○	PEILN0860	×	3.9k	15k	100	0.0033	0.01	0.033	○
S7960EX,S7965EK(S2)	1-9	×	○	0.01	×	○	470	×	○	○	×	×	PEILN0832	○	3.9k	12k	82	0.0047	0.022	0.082	×
S7965EF(S2)	1-9	×	○	0.01	×	○	470	×	○	○	×	×	PEILN0832	○	3.9k	12k	82	0.0047	0.022	0.082	×
S6960EX(S1)	1-9	×	○	0.01	○	×	220	○	×	×	×	×	PEILN0832	○	3.9k	12k	82	0.0047	0.022	0.082	×
S6965EF(S1)	1-9	×	○	0.01	○	×	220	○	×	×	×	×	PEILN0832	○	3.9k	12k	82	0.0047	0.022	0.082	×
S6960AA(S1)	1-9	×	○	0.01	×	×	220	○	×	×	×	×	PEILN0832	○	3.9k	12k	82	0.0047	0.022	0.082	×

○ : Used
× : Not used

MARKS ARE NOT MOUNTED ALL MODELS

TITLE REC	B65	IC2 C90
YES	×	○
NO	○	×

NOTES:UNLESS OTHERWISE SPECIFIED.
ALL RESISTANCE VALUES ARE IN OHMS.
ALL INDUCTANCE VALUES ARE IN H.
ALL CAPACITANCE VALUES ARE IN μF.
ELECTROLYTIC
CERAMIC
MYLER
NON POLAR
ALL NPN TYPE TRANSISTORS ARE 2SC4081/QRS/ or 2SD1819A/QRS/ or 2PC4081/R/
ALL PNP TYPE TRANSISTORS ARE 2SA1576A/QR/ or 2SB1218A/QR/ or 2PA1576/R/
ALL NPN TYPE DIGITAL TRANSISTORS ARE DTC144WUA or UNS31E or RN1309 or PDTC144WU
ALL PNP TYPE DIGITAL TRANSISTORS ARE DTA144WUA or UNS11E or RN2309 or PDTA144WU

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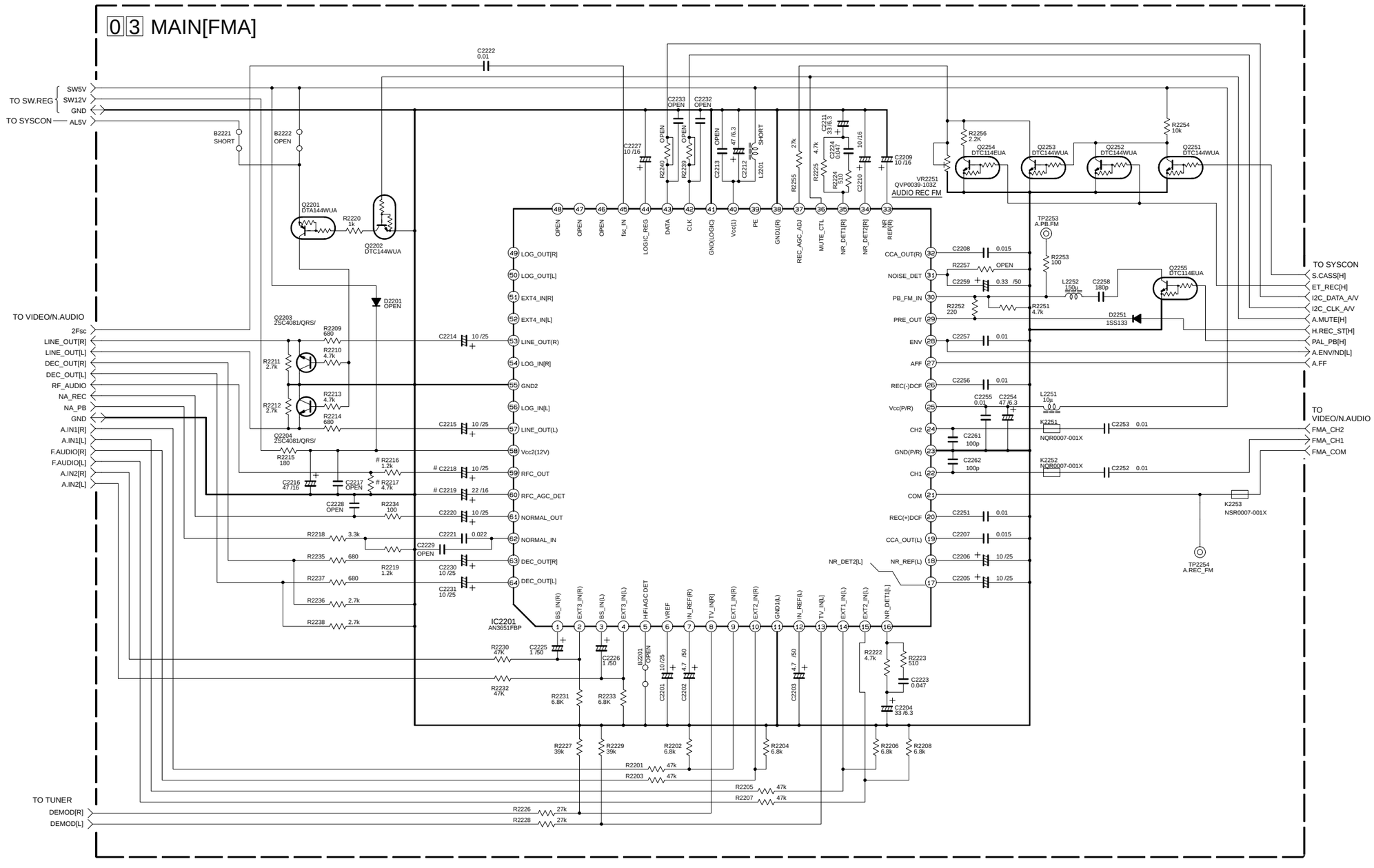
4.3 MAIN(FMA) SCHEMATIC DIAGRAM



#DIFFERENCE TABLE 1 ○ : Used × : Not used

RF OUT	C2218	C2219	R2216	R2217
YES		○		
NO		×		

NOTES: UNLESS OTHERWISE SPECIFIED.
ALL RESISTANCE VALUES ARE IN OHMS.
ALL INDUCTANCE VALUES ARE IN H.
ALL CAPACITANCE VALUES ARE IN µF.

ELECTROLYTIC
CERAMIC
MYLER
NON POLAR

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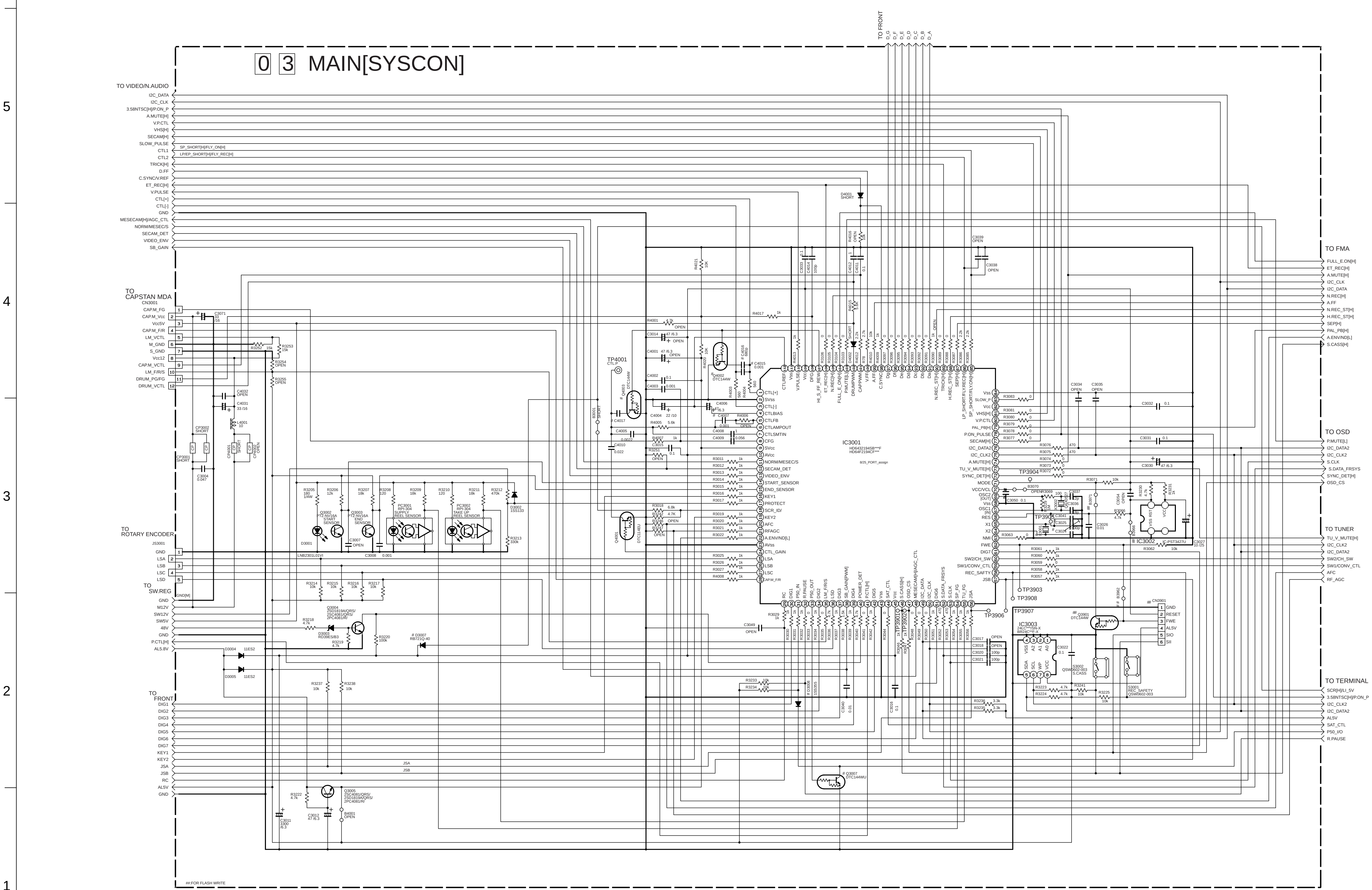
4.4 MAIN(SYSCON) SCHEMATIC DIAGRAM



03 MAIN[SYSCON]
TO VIDEO/N.AUDIO
I2C_DATA
I2C_CLK
3.58NTSC[H]/P.ON_P
A.MUTE[H]
V.P.CTL
VHS[H]
SECAM[H]
SLOW_PULSE
CTL1
CTL2
TRICK[H]
D.FF
C.SYNC/V.REF
ET_REC[H]
V.PULSE
CTL[+]
CTL[-]
GND
MESECAM[H]/AGC_CTL
NORM/MESEC/S
SECAM_DET
VIDEO_ENV
SB_GAIN
SP_SHORT[H]/FLY_ON[H]
LP/EP_SHORT[H]/FLY_REC[H]
TO CAPSTAN MDA
CN3001
CAP.M_FG
CAP.M_Vcc
Vcc5V
CAP.M_F/R
LM_VCTL
M_GND
S_GND
Vcc12
CAP.M_VCTL
LM_F/R/S
DRUM_PG/FG
DRUM_VCTL
TO ROTARY ENCODER
JS3001
GND
LSA
LSB
LSC
LSD
TO SW.REG
GND[M]
M12V
SW12V
SW5V
48V
P.CTL[H]
AL5.8V
TO FRONT
DIG1
DIG2
DIG3
DIG4
DIG5
DIG6
DIG7
KEY1
KEY2
JSA
JSB
RC
AL5V
TO FRONT
D_G
D_F
D_E
D_D
D_C
D_B
D_A
IC3001
HD6432194SB***F
HD64F2194CF***
8/25_PORT_assign
TO FMA
FULL_E.ON[H]
ET_REC[H]
A.MUTE[H]
I2C_CLK
I2C_DATA
N.REC[H]
A.FF
N.REC_ST[H]
H.REC_ST[H]
SEP[H]
PAL_PB[H]
A.ENV/ND[L]
S.CASS[H]
TO OSD
P.MUTE[L]
I2C_DATA2
I2C_CLK2
S.CLK
S.DATA_FRSYS
SYNC_DET[H]
OSD_CS
TO TUNER
TU_V_MUTE[H]
I2C_CLK2
I2C_DATA2
SW2/CH_SW
SW1/CONV_CTL
AFC
RF_AGC
TO TERMINAL
SCR[H]/LI_5V
3.58NTSC[H]/P.ON_P
I2C_CLK2
I2C_DATA2
AL5V
SAT_CTL
P50_I/O
R.PAUSE
IC3002 IC-PST3427U
IC3003 24LC***/SN-X BR24C**F-X
CN3901
GND
RESET
FWE
AL5V
SIO
SII
S3001 REC_SAFETY QSW0602-003
S3002 QSW0602-003 S.CASS
Q3901 DTC144W
Q3007 DTC144WU
Q3004 2SD1819A/QRS/ 2SC4081/QRS/ 2PC4081/R/
Q3005 2SC4081/QRS/ 2SD1819A/QRS/ 2PC4081/R/
PC3001 RPI-304 SUPPLY REEL SENSOR
PC3002 RPI-304 TAKE UP REEL SENSOR
Q3002 PTZ-NV16A START SENSOR
Q3003 PTZ-NV16A END SENSOR
##:FOR FLASH WRITE

DIFFERENCE_TABLE

	R3032 R3233	R3012	R3080 R3083	R3104	D3007
S25EX/EK	○	×	○	○	×
S2EX/EK	×	×	○	×	×
S1EX	×	×	×	×	×
S1EF	×	○	×	×	×
S2EF	×	○	○	×	×
S25AG	○	×	○	○	○
S1AA	×	×	×	×	○

NOTES: UNLESS OTHERWISE SPECIFIED.
ALL RESISTANCE VALUES ARE IN OHMS.
ALL INDUCTANCE VALUES ARE IN H.
ALL CAPACITANCE VALUES ARE IN μF.
- ELECTROLYTIC
- CERAMIC
- MYLER
- NON POLAR

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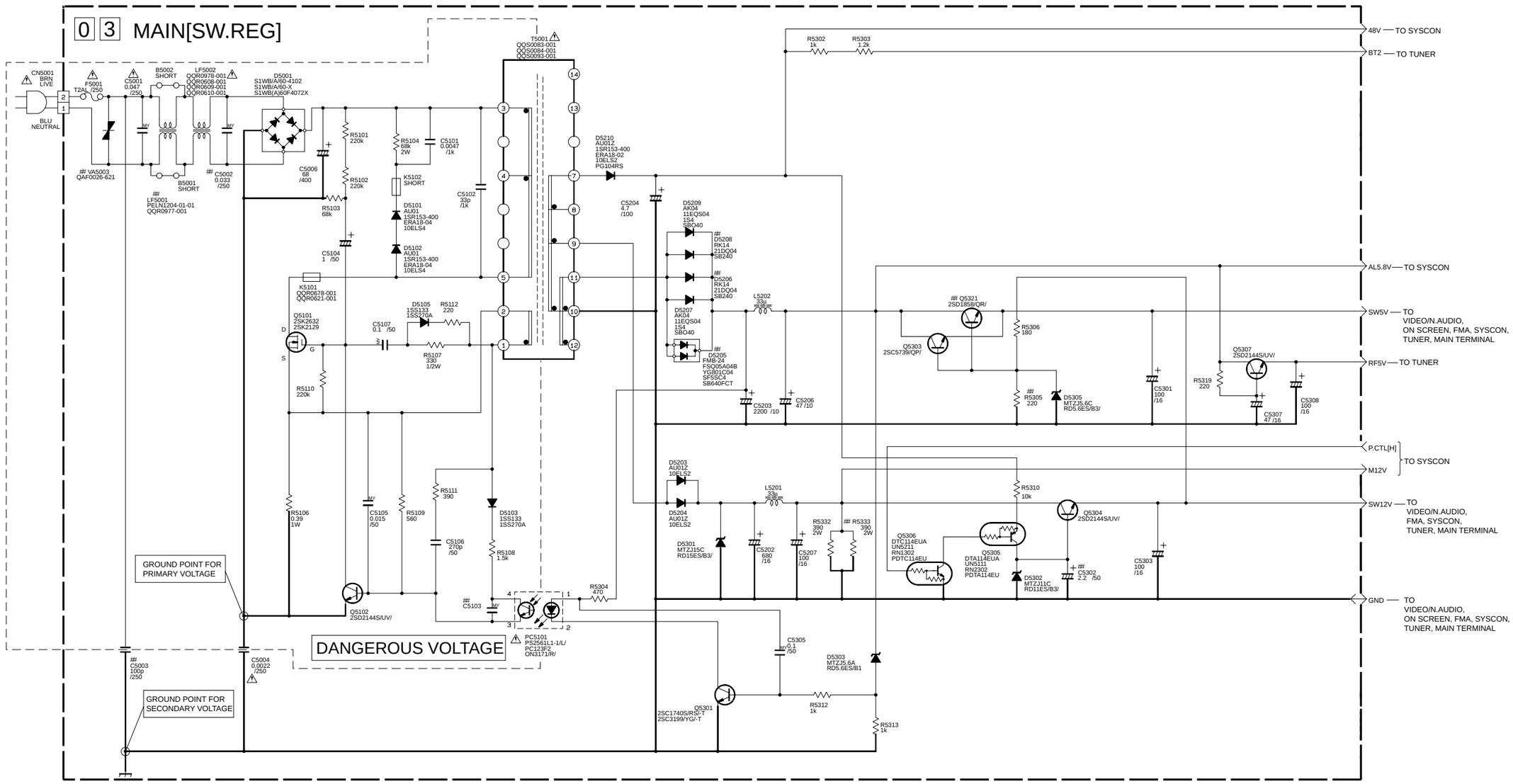
A B C D E F G H

4.5 MAIN(SW.REG) SCHEMATIC DIAGRAM



MARK ELEMENTS ARE NOT MOUNTED

NOTES:UNLESS OTHERWISE SPECIFIED.
ALL RESISTANCE VALUES ARE IN OHMS.
ALL INDUCTANCE VALUES ARE IN H.
ALL CAPACITANCE VALUES ARE IN μF.

ELECTROLYTIC
CERAMIC
MYLER
NON POLAR

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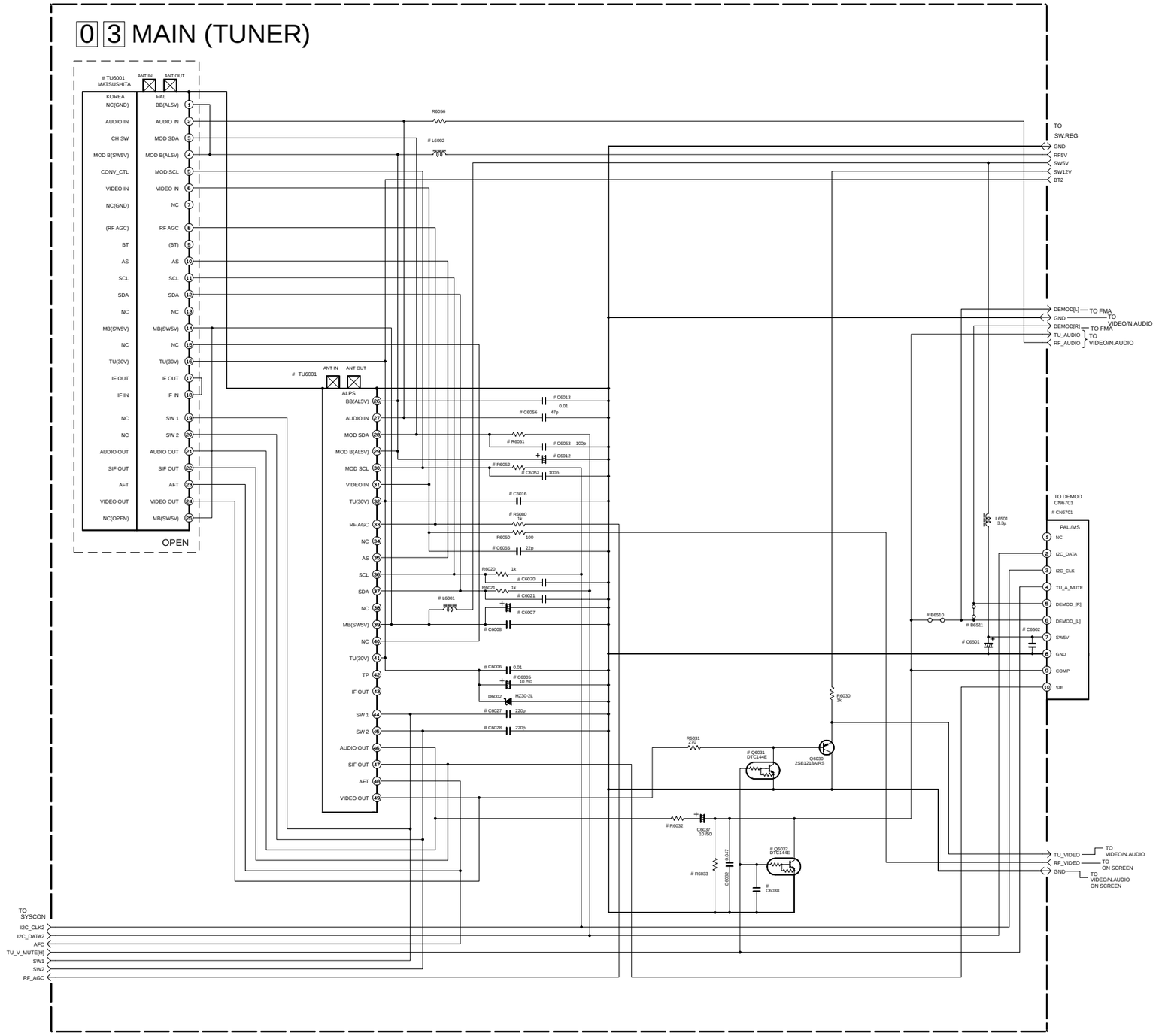
4.6 MAIN(TUNER) SCHEMATIC DIAGRAM



DIFFERENCE TABLE ○ : Used × : Not used

			EU/EK	FRANCE MS	EE
TUNER		TU6001	ALPS	LG	ALPS
			QAU0261	QAU0266	QAU0261
ATS+		R6080	1kΩ	1kΩ	×
SW5V		L6001	10μ	10μ	10μ
		C6007	×	×	×
		C6008	0.01	×	0.01
RFSV		C6012	×	×	×
		C6013	0.01	0.01	0.01
BT2	RF CONV.	C6016	×	×	×
	TUNER	C6005	×	×	×
		C6006	×	×	×
RF CONV.	I2C	R6051	100	×	100
		C6053	×	×	×
		R6052	100	×	100
		C6052	×	×	×
	AUDIO IN	R6056	100	×	100
		C6056	○	×	○
	VIDEO IN	R6050	○	×	○
		C6055	○	×	○
TUNER I2C		C6020	×	×	×
		C6021	×	×	×
SYSTEM SW		C6027	×	×	×
		C6028	×	×	×
AUDIO OUT		R6032	4.7k	18k	4.7k
		R6033	1.8k	18k	1.8k
		C6032	○	×	○
		Q6032	○	○	×
VIDEO OUT		Q6031	○	○	×
DEMOD PASS CON		C6501	10μ	10μ	10μ
		C6502	0.01	0.01	0.01

NOTES:UNLESS OTHERWISE SPECIFIED.
ALL RESISTANCE VALUES ARE IN OHMS.
ALL INDUCTANCE VALUES ARE IN H.
ALL CAPACITANCE VALUES ARE IN μF.

ELECTROLYTIC
CERAMIC
MYLER
NON POLAR

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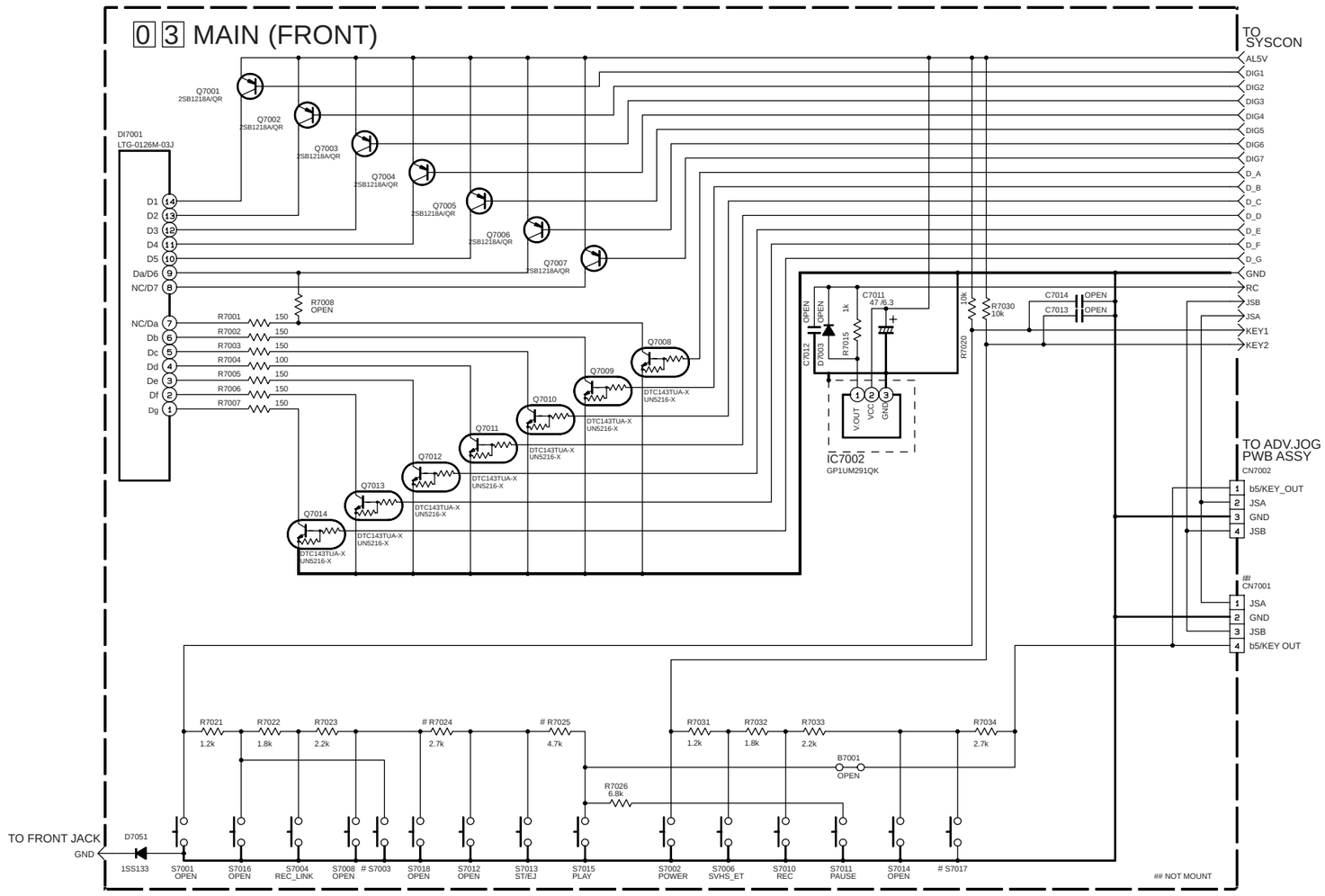
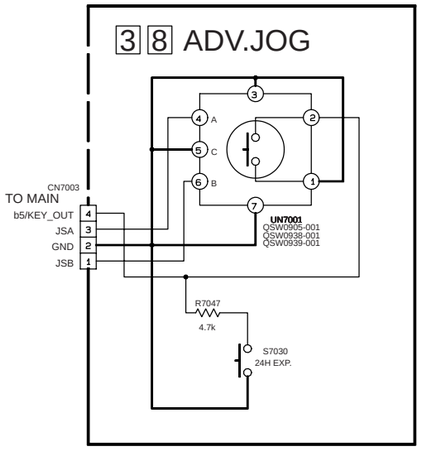
4.7 MAIN(FRONT) AND ADV.JOG SCHEMATIC DIAGRAMS





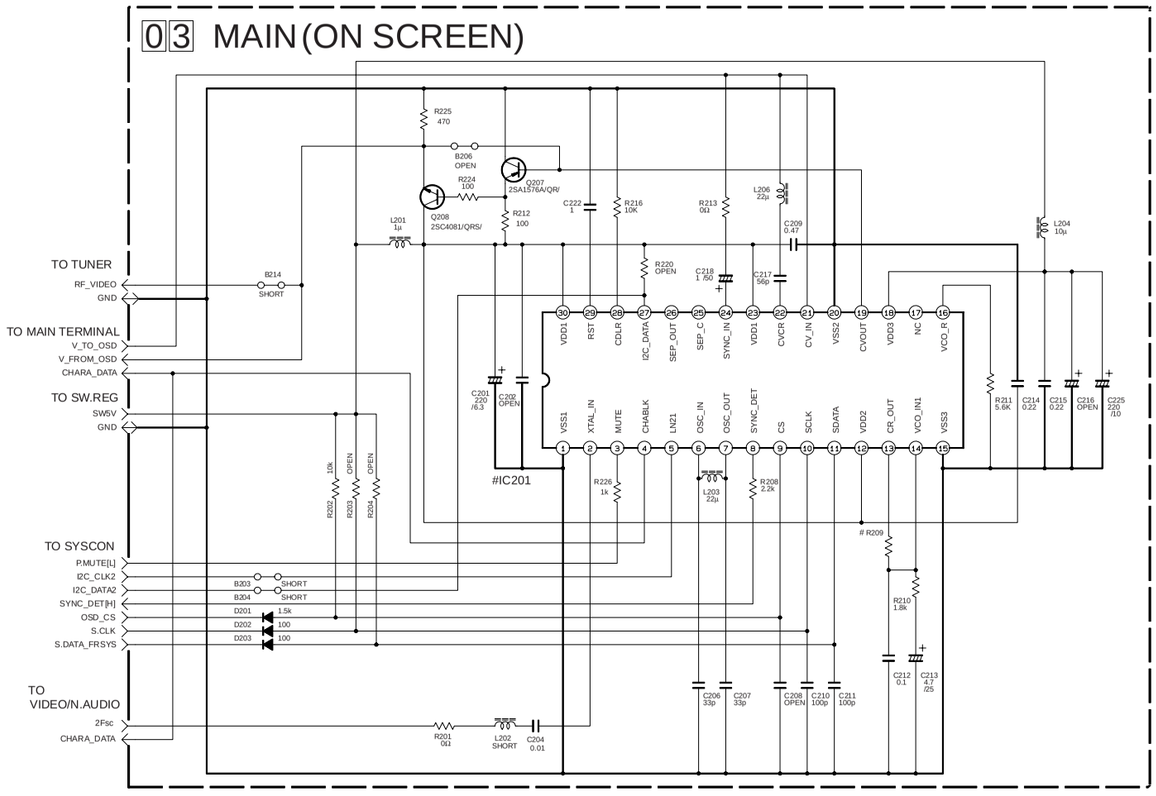
#DIFFERENCE TABLE 1

TOOL	Working No	S7001	S7002	S7003	S7004	S7006	S7008	S7010	S7011	S7012	S7013	S7014	S7015	S7016	S7017	S7018	S7030
400KA	S1/S2	-	POWER	TIMER	REC LINK	S-VHS ET	-	REC	PAUSE	-	ST/EJ	-	PLAY	-	SP/LP /EP	-	24H EXP
	S25	-	POWER	INSERT	REC LINK	S-VHS ET	-	REC	PAUSE	-	ST/EJ	-	PLAY	-	A.DUB	-	24H EXP

NOTES:UNLESS OTHERWISE SPECIFIED.
ALL RESISTANCE VALUES ARE IN OHMS.
ALL INDUCTANCE VALUES ARE IN H.
ALL CAPACITANCE VALUES ARE IN μF.

ELECTROLYTIC
CERAMIC
MYLER
NON POLAR

p20334001a_rev0

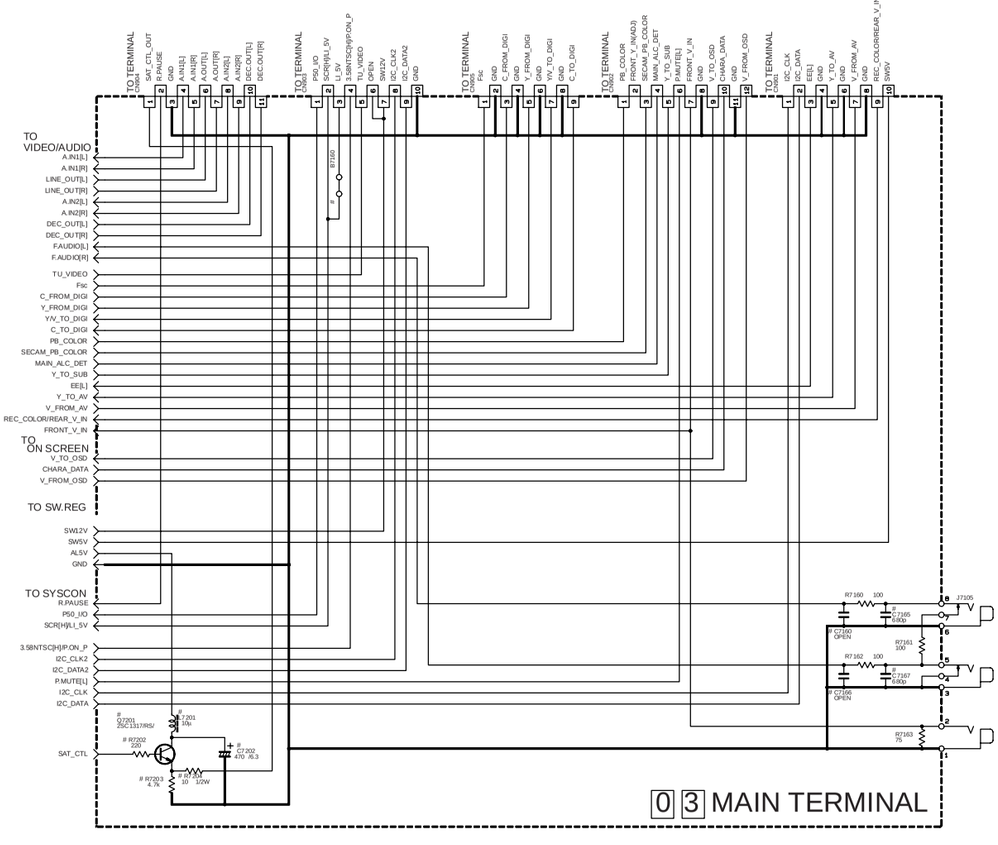


NOTES:UNLESS OTHERWISE SPECIFIED.
ALL RESISTANCE VALUES ARE IN OHMS.
ALL INDUCTANCE VALUES ARE IN H.
ALL CAPACITANCE VALUES ARE IN µF.

ELECTROLYTIC
CERAMIC
MYLER
NON POLAR

DIFFERENCE TABLE

	IC201	R209
EE	LC74776-9791	6.8k
OTHER	LC74775-9750	5.1k



NOTES:UNLESS OTHERWISE SPECIFIED.
ALL RESISTANCE VALUES ARE IN OHMS.
ALL INDUCTANCE VALUES ARE IN H.
ALL CAPACITANCE VALUES ARE IN µF.

ELECTROLYTIC
CERAMIC
MYLER
NON POLAR

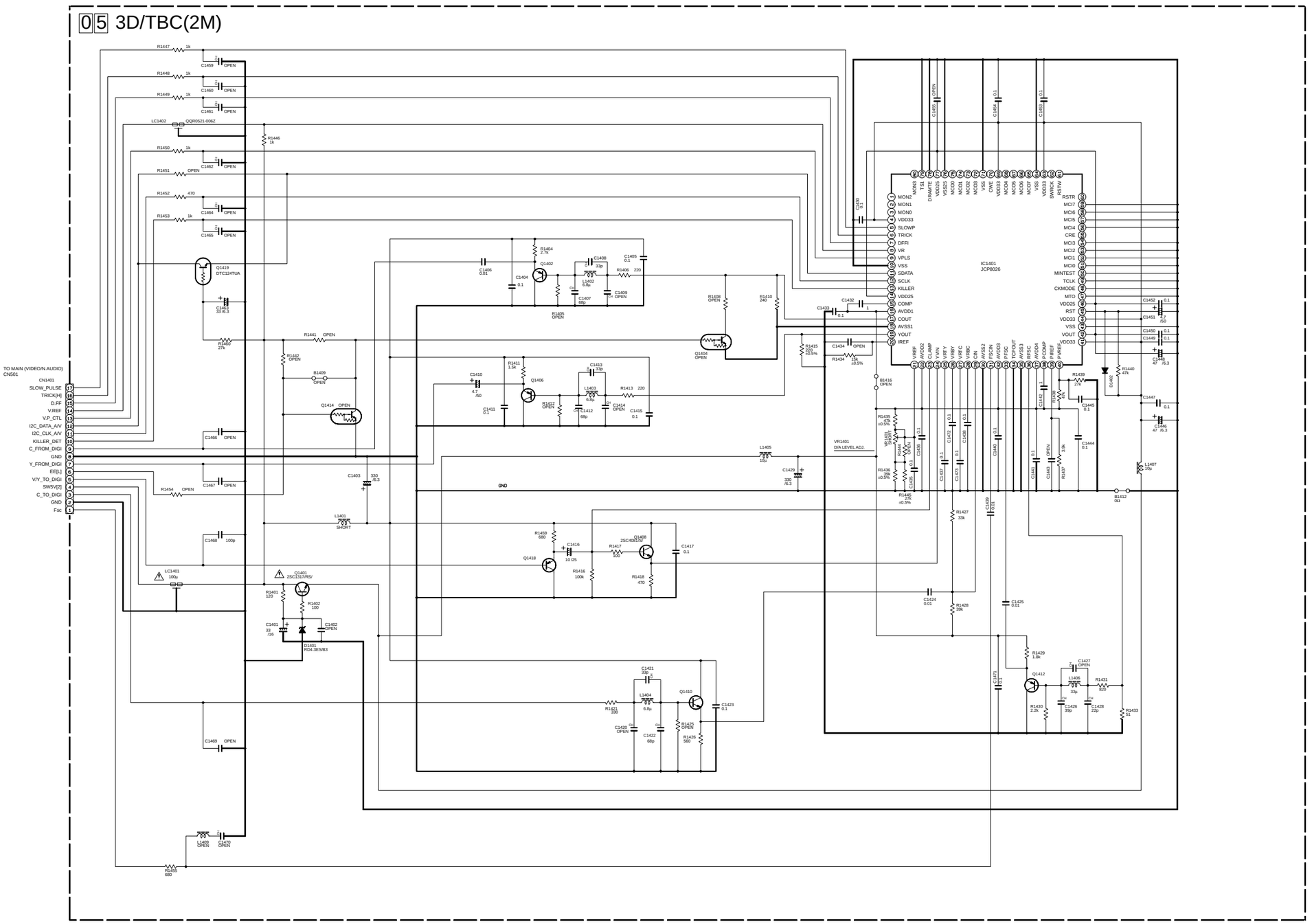
DIFFERENCE TABLE

SAT CTL	Q7201 R7202 R7203 R7204 C7202 L7201
YES	○
NO	×

CE	C7160 C7165 C7166 C7167
YES	○
NO	×

LITH BATT	B7160
YES	○
NO	×

4.10 3D/TBC (2M) SCHEMATIC DIAGRAM



NOTES:UNLESS OTHERWISE SPECIFIED.
- ALL RESISTANCE VALUES ARE IN OHMS.
- ALL INDUCTANCE VALUES ARE IN H.
- ALL CAPACITANCE VALUES ARE IN μF.

E ELECTROLYTIC
C CERAMIC
MY MYLER
N NON POLAR

ALL DIODES ARE 1SS133 OR 1N4148.
ALL FNP TYPE TRANSISTORS ARE 2SA1576A/QR/. OR 2PA1576R/.
ALL NPN TYPE TRANSISTORS ARE 2SC4081/QR/S/. OR 2PC4081/R/.

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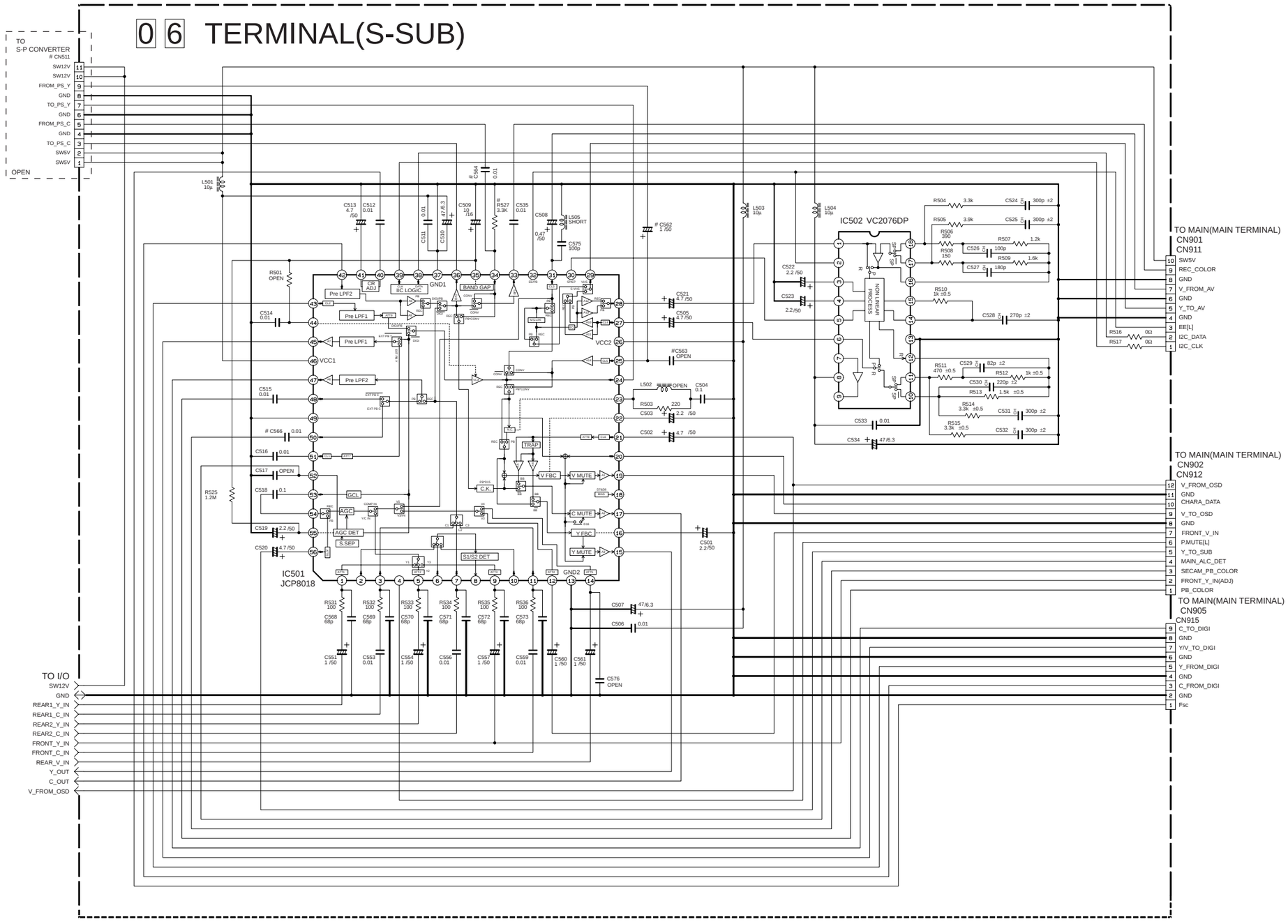
4.11 TERMINAL(S-SUB) SCHEMATIC DIAGRAM



O : Used
× : Not used

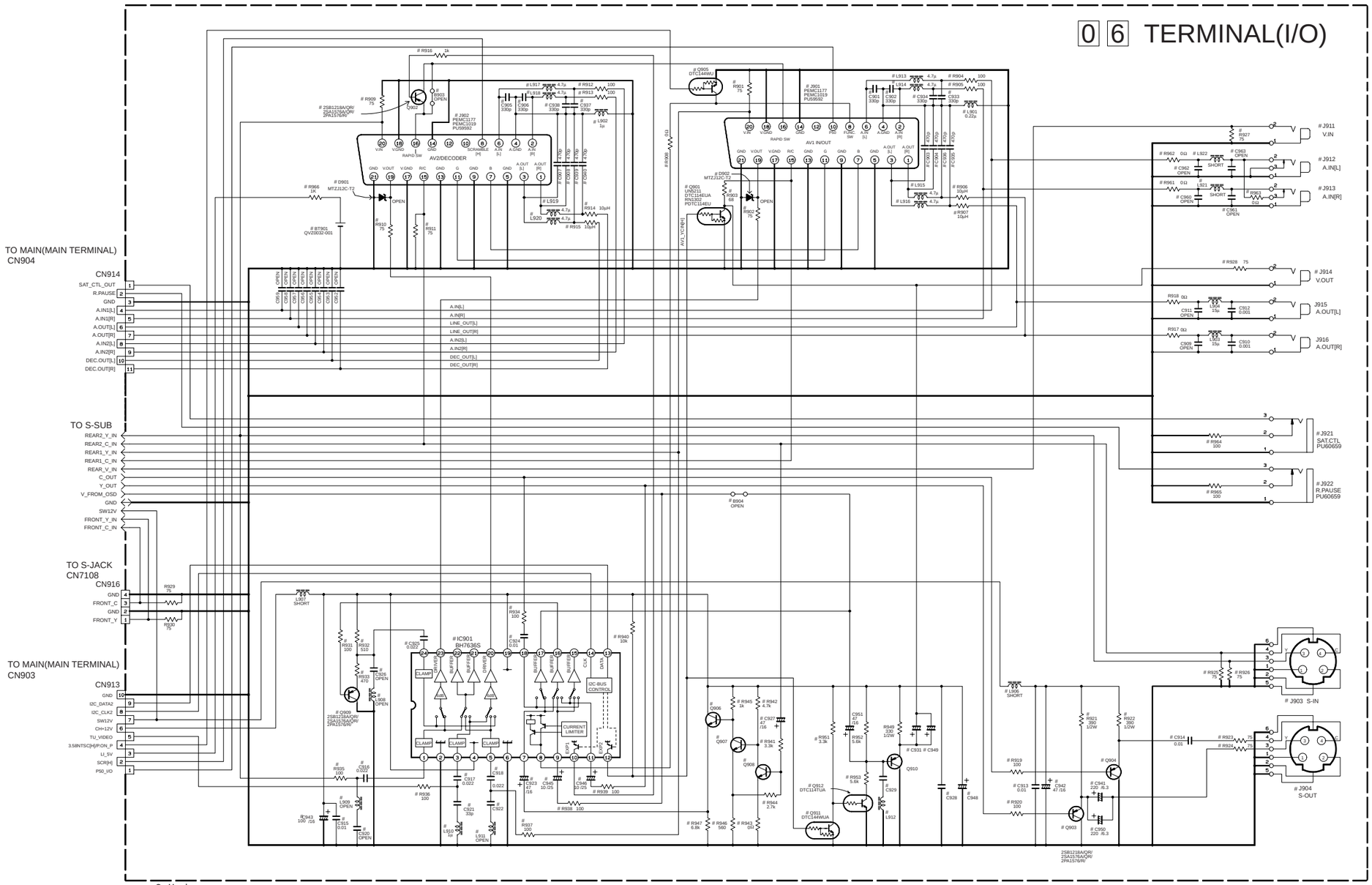
DIFFERENCE TABLE

	CN511 C562 C564 C566	C563 R527
MS	○	×
OTHERS	×	○

NOTES: UNLESS OTHERWISE SPECIFIED.
ALL RESISTANCE VALUES ARE IN OHMS.
ALL INDUCTANCE VALUES ARE IN H.
ALL CAPACITANCE VALUES ARE IN μF.
ELECTROLYTIC
CERAMIC
MYLER
NON POLAR

p20213001a_rev0

4.12 TERMINAL(I/O) SCHEMATIC DIAGRAM



○ : Used
× : Not used

DIFFERENCE TABLE

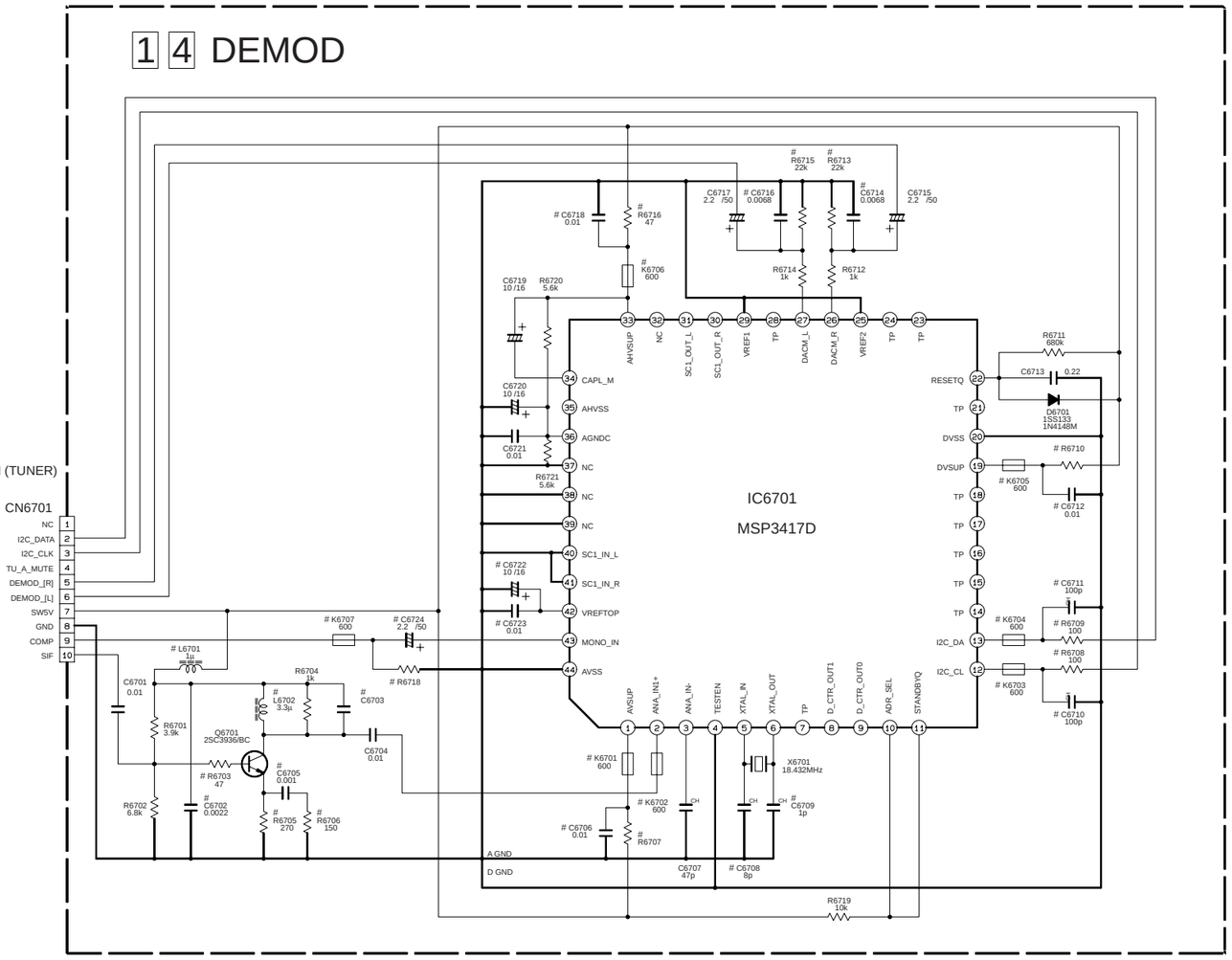
		CH+	REAR S-OUT	S-IN	REAR IN/OUT	SAT CTL	R.PAUSE	SW12VDECUP				CE/V-OUT DRIVER				BACK UP
		R901-R908, R909-R916, R931-R947, R951,R953 L901,L902 L908-L911, L913-L916, L917-L920, IC901 B903,B904 D901,D902 J901,J902	C901-C904, C905-C908, C916-C918, C920-C927, C933-C936, C937-C940, C945,C946 Q902 Q901,Q905 Q906-Q909, Q911,Q912	J904 R919-R924 C913,C914 C941,C942 C950 Q903,Q904 L906	J903 R925,R926	J911-J914 R927,R928 R961-R963 L921,L922 C960-C963	J921 R964	J922 R965	C915	C943	C928	C948	C929	L912	C931	C949	R966 BT901
EURO MODELS	WITHOUT REAR S-OUT	○	×	×	×	○	×	0.01	100/16	0.01	OPEN	OPEN	OPEN	10/25	OPEN	×
	WITH REAR S-OUT	○	○	×	×	○	○	0.01	100/16	0.01	OPEN	OPEN	OPEN	10/25	OPEN	×
ARC MODELS		×	○	○	○	×	×	OPEN	OPEN	0.01	47/16	5.6k	SHORT	220/6.3	220/6.3	○

ALL NPN TYPE TRANSISTORS ARE 2SC4081/QRS/ or 2SD1819A/QRS/ or 2PC4081/R/.
ALL PNP TYPE TRANSISTORS ARE 2SA1576A/QR/ or 2SB1218A/QR/ or 2PA1576/R/.

NOTES:UNLESS OTHERWISE SPECIFIED.
ALL RESISTANCE VALUES ARE IN OHMS.
ALL INDUCTANCE VALUES ARE IN H.
ALL CAPACITANCE VALUES ARE IN μF.

ELECTROLYTIC
CERAMIC
MYLER
NON POLAR

4.13 DEMODULATOR SCHEMATIC DIAGRAM



DIFFERENCE TABLE ○ : Used × : Not used

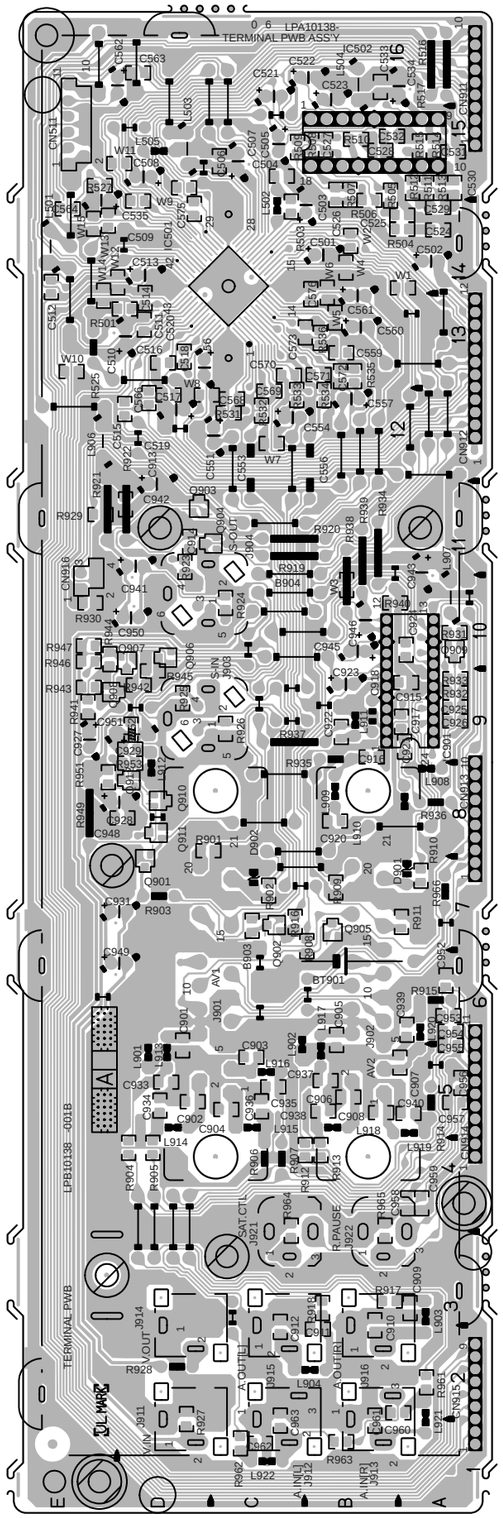
		EU/EK	MS	KR	MS	EX/EK	AA/AG		
DEMOD PWB ASSY		LPA10094-09*	LPA10094-10*	LPA10094-11*	LPA10094-12*	LPA10094-13*	LPA10094-14*		
PRE AMP	R6703	0	0	47	0	0	0		
	R6705	270	270	270	270	270	270		
	R6706	×	×	100	×	×	×		
	C6702	×	×	×	×	×	×		
	C6703	×	×	×	×	×	180p		
	C6705	×	×	0.001	×	×	×		
	L6701	SHORT	SHORT	SHORT	SHORT	SHORT	SHORT		
	L6702	×	×	3.3μ	×	×	3.3μ		
MONO IN	K6707	×	FE 600	×	FE 600	×	×		
	C6724	×	0.22/50	×	0.22/50	×	×		
	R6718	×	×	×	×	×	×		
I2C-BUS	R6708	FE 600	FE 600	FE 600	FE 600	10k	10k		
	R6709	FE 600	FE 600	FE 600	FE 600	1k	1k		
	K6703	10k	0	1k	1k	FE 600	FE 600		
	K6704	0	0	1k	1k	FE 600	FE 600		
	C6710,C6711	×	×	×	×	×	×		
ANALOG Vcc	R6707	FE 600	FE 600	FE 600	39	0	0		
	K6701	33	33	39	FE 600	FE 600	FE 600		
	C6706	×	×	×	×	×	×		
DIGITAL Vcc	R6710	FE 600	FE 600	FE 600	12	0	0		
	K6705	0	10	12	FE 600	FE 600	FE 600		
	C6712	×	×	×	×	×	×		
DAC Vcc	R6716	FE 600	FE 600	FE 600	47	47	47		
	K6706	47	47	47	FE 600	FE 600	FE 600		
	C6718	×	×	×	×	×	×		
X'TAL	C6708	7p	7p	7p	8p	7p	7p		
	C6709	3p	3p	3p	2p	3p	3p		
DAC OUT	R6713,R6715	12k	12k	×	×	○	○		
	C6714,C6716	0.0022	0.0068	0.0022	0.0068	0.0022	0.0022		
VREFTOP	C6722	×	×	×	×	×	×		
	C6723	0.01	0.01	0.001	0.01	0.01	0.01		

NOTES: UNLESS OTHERWISE SPECIFIED.
ALL RESISTANCE VALUES ARE IN OHMS.
ALL INDUCTANCE VALUES ARE IN H.
ALL CAPACITANCE VALUES ARE IN μF.
ELECTROLYTIC
CERAMIC
MYLER
NON POLAR

p20162001a_rev3.1

4.14 TERMINAL CIRCUIT BOARD

<06> TERMINAL
LPB10138-001B

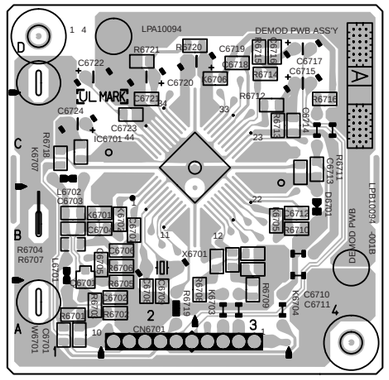


COMPONENT PARTS LOCATION GUIDE
<TERMINAL> LPB10138-001B

REF.NO.	LOCATION
CAPACITOR	
C501	A D 14B
C502	A D 14A
C503	A D 14B
C504	B C 15C
C505	A D 15C
C506	B C 15C
C507	A D 15C
C508	A D 15D
C509	A D 14E
C510	A D 13D
C511	B C 13D
C512	B C 14E
C513	A D 14D
C514	B C 13D
C515	B C 12D
C516	B C 13D
C517	B C 12D
C518	B C 13D
C519	A D 12D
C520	A D 13D
C521	A D 16C
C522	A D 16C
C523	A D 16B
C524	B C 14A
C525	B C 14A
C526	B C 15B
C527	B C 15B
C528	B C 15B
C529	B C 14A
C530	B C 15A
C531	B C 15A
C532	B C 15B
C533	B C 16B
C534	A D 16A
C535	B C 14D
C551	A D 12C
C553	A D 12C
C554	A D 12C
C556	A D 12B
C557	A D 12B
C559	B C 13B
C560	A D 13B
C561	A D 13B
C562	A D 16D
C563	B C 16D
C564	B C 14E
C566	B C 12D
C568	B C 12C
C569	B C 12C
C570	B C 13C
C571	B C 13B
C572	B C 13B
C573	B C 13B
C575	B C 14D
C576	B C 13B
C901	B C 5D
C902	B C 5D
C903	B C 5C
C904	B C 5C
C905	B C 6B
C906	B C 5B
C907	B C 5A
C908	B C 5B
C909	B C 3A
C910	B C 3B
C911	B C 2B
C912	B C 2C
C913	B C 11D
C914	B C 11D
C915	B C 9A
C916	B C 9B
C917	B C 9A
C918	A D 9B
C920	B C 8B
C921	B C 9A
C922	B C 9B
C923	A D 9B
C924	B C 10A
C925	B C 9A
C926	B C 9A
C927	A D 9E
C928	B C 8D
C929	B C 9D
C931	A D 7E
C933	B C 5D
C934	B C 5D
C935	B C 5C
C936	B C 5C
C937	B C 5B
C938	B C 5B
C939	B C 6A
C940	B C 5A
C941	A D 11D
C942	A D 11D
C943	A D 11A
C945	A D 10B
C946	A D 10B
C948	A D 8E
C949	A D 6E
C950	A D 10D
C951	A D 9E
C952	B C 6A
C953	B C 6A
C954	B C 6A
C955	B C 5A
C956	B C 5A
C957	B C 5A
C958	B C 4A
C959	B C 4A
C960	B C 2B
C961	B C 1B
C962	B C 1C
C963	B C 1C
CONNECTOR	
CN511	A D 15E
CN911	A D 15A
CN912	A D 12A
CN913	A D 7A
CN914	A D 4A
CN915	A D 1A
CN916	A D 10E
DIODE	
D901	A D 8A
D902	A D 7C
IC	
IC501	B C 14C
IC502	A D 15B
IC901	A D 9B
JACK	
J901	A D 6C
J902	A D 6B
J903	A D 9D
J904	A D 10D
J911	A D 2D
J912	A D 2C
J913	A D 2B
J914	A D 3D
J915	A D 3C
J916	A D 3B
J921	A D 4C
J922	A D 4B
COIL	
L501	A D 14E
L502	A D 14C
L503	A D 15D
L504	A D 16B
L505	A D 15D
L901	A D 5D
L902	A D 5C
L903	A D 3A
L904	A D 2B
L906	A D 12E
L907	A D 10A
L908	A D 8A
L909	A D 8B
L910	A D 8A
L911	A D 9B
L912	A D 8D
L913	A D 6D
L914	A D 5D
L915	A D 5C
L916	A D 5C
L917	A D 6B
L918	A D 5B
L919	A D 5B
L920	A D 5A
L921	A D 2A
L922	A D 1C
TRANSISTOR	
Q901	B C 7D
Q902	B C 7C
Q903	B C 11D
Q904	B C 11D
Q905	B C 7B
Q906	B C 10D
Q907	B C 10D
Q908	B C 9E
Q909	B C 10A
Q910	B C 8D
Q911	B C 8D
Q912	B C 8D
RESISTOR	
R501	B C 13D
R503	B C 14C
R504	B C 14A
R505	B C 15B
R506	B C 14B
R507	B C 15B
R508	B C 15B
R509	B C 15C
R510	B C 15B
R511	B C 15A
R512	B C 15A
R513	B C 15A
R514	B C 15A
R515	B C 15A
R516	A D 16A
R517	A D 16A
R525	A D 13E
R527	B C 15E
R531	B C 12C
R532	B C 12C
R533	B C 12C
R534	B C 12B
R535	B C 13B
R536	B C 13B
R901	B C 8D
R902	B C 7C
R903	A D 7D
R904	B C 4D
R905	B C 4D
R906	A D 4C
R907	A D 4C
R908	B C 7B
R909	B C 7B
R910	B C 7A
R911	B C 7A
R912	B C 4B
R913	B C 4B
R914	A D 5A
R915	A D 6A
R916	B C 7C
R917	B C 3B
R918	B C 3B
R919	A D 11B
R920	A D 11B
R921	A D 11E
R922	A D 11D
R923	B C 11D
R924	B C 10C
R925	B C 9D
R926	B C 9C
R927	B C 2D
R928	A D 2D
R929	B C 11E
R930	B C 10E
R931	B C 10A
R932	B C 9A
R933	B C 9A
R934	A D 11B
R935	A D 9B
R936	A D 8A
R937	A D 9B
R938	A D 11B
R939	A D 11B
R940	B C 10B
R941	B C 9E
R942	B C 9D
R943	B C 9E
R944	B C 10E
R945	B C 9D
R946	B C 10E
R947	B C 10E
R949	A D 8E
R951	B C 8E
R952	B C 9D
R953	B C 8D
R961	B C 2A
R962	B C 1C
R963	B C 1B
R964	B C 4C
R965	B C 4B
R966	A D 7A
OTHER	
BT901	A D 6B

4.15 DEMODULATOR CIRCUIT BOARD

<14> DEMODULATOR
LPB10094-001C



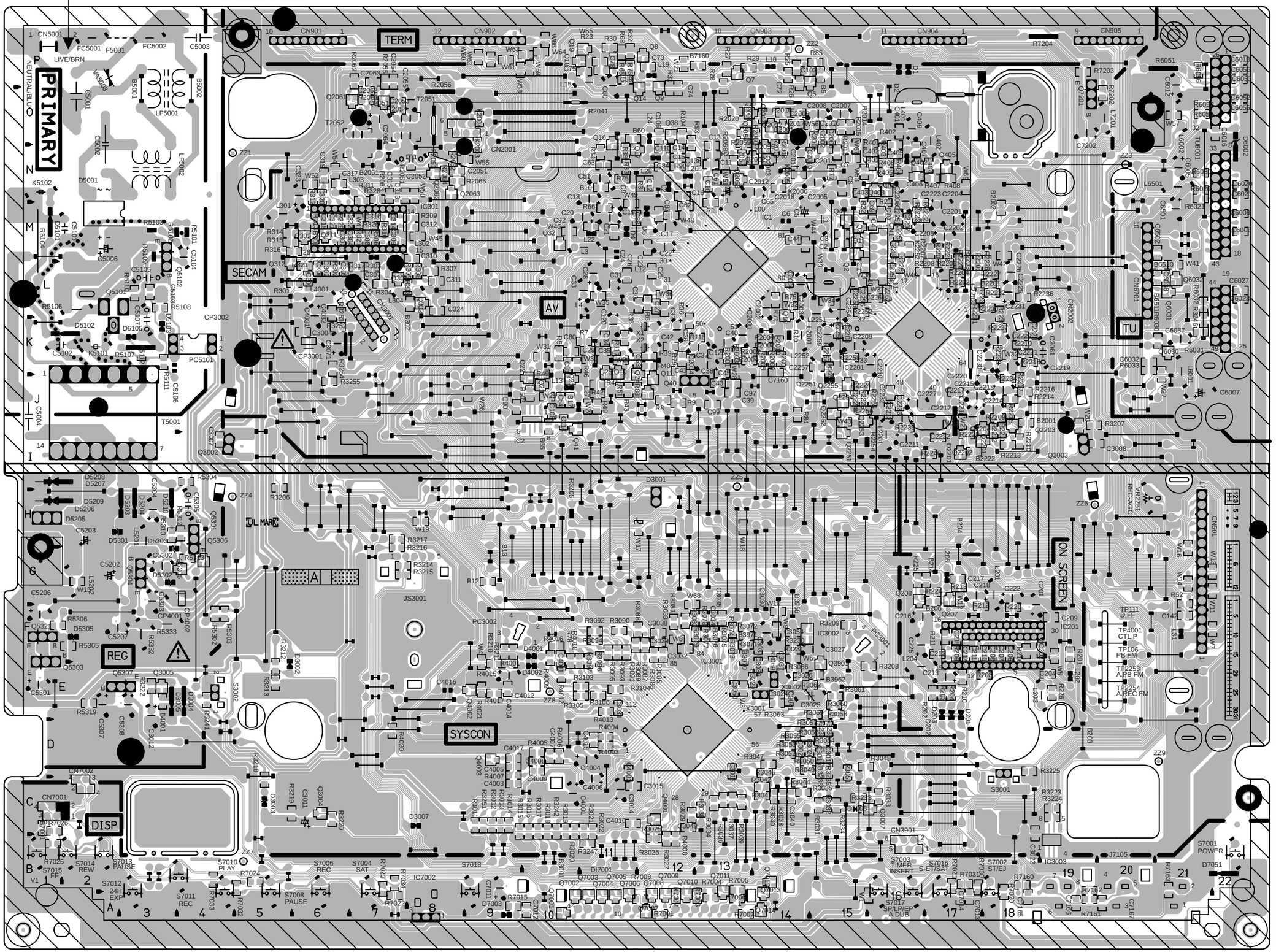
COMPONENT PARTS LOCATION GUIDE
<DEMODULATOR> LPB10094-001C

REF.NO.	LOCATION
CAPACITOR	
C1501	A D 4C
C1502	A D 3D
C1503	A D 4D
C1504	A D 4C
C1505	A D 3D
C1506	A D 3C
C1507	A D 2C
C1508	A D 1D
C1509	A D 2C
C1510	A D 1B
C1511	A D 1A
C1512	A D 2A
C1513	A D 2B
C1514	A D 2A
C1515	A D 3B
C1516	A D 3C
C1517	A D 3B
C1518	A D 3A
C1519	A D 3B
C1520	A D 3A
C1521	A D 2C
CONNECTOR	
CN1501	A D 3A
IC	
IC1501	B C 2C
TRANSISTOR	
Q1501	A D 3B
Q1502	A D 3B
RESISTOR	
R1501	A D 4C
R1502	A D 2C
R1503	A D 2C
R1504	A D 2B
R1505	A D 2B
R1506	A D 2B
R1507	A D 2B
R1508	A D 3B
R1509	A D 3B
R1510	A D 4B
R1511	A D 3A
R1514	A D 2B
R1515	A D 2C
R1517	A D 2C

4.16 MAIN CIRCUIT BOARD [FOR HR-S8960AG]

DANGEROUS VOLTAGE

<03>MAIN
LPB10170-003A



COMPONENT PARTS LOCATION GUIDE <MAIN> LPB10170-003A

REF.NO.	LOCATION
CAPACITOR	
C1	B C 15L
C2	B C 15M
C3	B C 15M
C4	B C 16M
C5	A D 14M
C6	A D 14M
C7	B C 15N
C8	B C 15N
C9	A D 11M
C10	B C 13N
C11	B C 13N
C12	B C 12N
C13	B C 13N
C14	B C 12N
C15	B C 12N
C16	B C 12N
C17	A D 12M
C18	A D 11N
C19	A D 11M
C20	A D 11M
C21	B C 11M
C22	A D 12M
C23	B C 12M
C24	A D 11L
C25	B C 12L
C26	B C 11L
C27	B C 12L
C28	A D 11L
C29	B C 11K
C30	B C 12L
C31	A D 11L
C32	B C 12L
C33	A D 11L
C34	B C 11K
C35	B C 11K
C36	A D 12K
C37	A D 12K
C38	A D 13K
C39	B C 13J
C40	A D 13K
C41	B C 12K
C42	B C 12K
C43	B C 13J
C44	B C 14M
C45	B C 13K
C51	A D 11N
C53	B C 12K
C59	B C 11P
C60	A D 11P
C61	B C 13N
C62	B C 12M
C63	B C 11N
C64	B C 10J
C65	A D 14N
C69	B C 16M
C70	B C 16M
C72	B C 14P
C73	B C 12P
C74	B C 12O
C75	B C 11P
C78	B C 11P
C80	B C 10K
C81	B C 10K
C84	B C 12N
C87	B C 12M
C88	B C 11M
C90	B C 9J
C92	B C 11M
C97	B C 13J
C99	B C 13J
C103	B C 14P
C106	B C 12O
C108	B C 10J
C110	B C 12N
C114	B C 10J
C120	A D 11K
C125	B C 13K
C136	B C 12N
C142	B C 21F
C201	A D 18F
C202	B C 19F
C204	B C 19E
C206	B C 18F
C207	B C 18F
C208	B C 18F
C209	B C 19F
C210	B C 18F
C211	B C 17F
C212	B C 17F
C213	A D 17E
C214	B C 17F
C215	B C 17F
C216	A D 16F
C217	B C 17G
C218	A D 17G
C222	A D 18G
C225	A D 16F
C301	B C 6L
C302	B C 6L
C303	B C 6M
C304	B C 7M
C305	B C 6L
C306	B C 6L
C307	B C 7L
C308	B C 7M
C309	B C 7M
C310	B C 8M
C311	B C 8L
C312	B C 8M
C313	B C 7N
C314	B C 7M
C315	B C 7N
C316	B C 7M
C317	B C 6N
C318	B C 6M
C319	B C 6N
C320	B C 6N
C321	B C 6M
C322	B C 7M
C323	A D 6N
C324	B C 8L
C401	B C 16O
C402	B C 16N
C403	B C 15N
C404	B C 17N
C405	B C 16N
C406	B C 16N
C407	B C 16N
C409	A D 16O
C2001	A D 13K
C2002	A D 14L
C2003	A D 14L
C2004	B C 14L
C2005	A D 15N
C2006	B C 15O
C2007	A D 15O
C2008	A D 15O
C2009	B C 14O
C2010	B C 15N
C2011	A D 14N
C2012	A D 13N
C2013	B C 15N
C2014	B C 12K
C2016	B C 15O
C2017	B C 14O
C2018	B C 14N
C2051	B C 8N
C2052	A D 7N
C2053	B C 7O
C2054	B C 7P
C2055	A D 8O
C2061	A D 19K
C2062	B C 7O
C2063	B C 7P
C2064	A D 7O
C2201	A D 17M
C2202	A D 17M
C2203	A D 17L
C2204	A D 17M
C2205	A D 16M
C2206	A D 16M
C2207	B C 16M
C2208	B C 15K
C2209	A D 15K
C2210	A D 16K
C2211	A D 16I
C2212	A D 16J
C2213	B C 16J
C2214	A D 18J
C2215	A D 17J
C2216	A D 17J
C2217	B C 17J
C2218	A D 18J
C2219	A D 18K
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C2225	A D 18L
C2226	A D 18L
C2227	A D 16J
C2228	B C 18K
C2229	B C 18K
C2230	A D 18K
C2231	A D 18K
C2232	B C 16J
C2233	B C 16J
C2251	B C 16M
C2252	B C 16M
C2253	B C 16L
C2254	A D 15L
C2255	B C 15L
C2256	B C 15L
C2257	B C 15K
C2258	B C 15K
C2259	A D 15K
C2261	B C 16L
C2262	B C 16L
C3004	B C 6K
C3007	B C 4I
C3008	B C 19I
C3011	A D 6C
C3012	A D 3E
C3014	A D 11C
C3015	B C 11C
C3016	B C 13D
C3017	B C 15D
C3018	B C 15D
C3020	B C 15D
C3021	B C 14D
C3022	B C 18C
C3024	B C 14E
C3025	A D 15E
C3026	B C 14E
C3027	A D 14F
C3030	A D 14F
C3031	B C 14F
C3032	B C 12F
C3033	B C 11E
C3034	B C 13F
C3035	B C 13F
C3036	B C 14E
C3037	B C 14F
C3038	B C 12F
C3039	B C 12F
C3040	B C 14C
C3041	B C 14E
C3049	B C 12C
C3050	B C 13E
C3054	B C 14F
C3071	A D 6K
C4001	A D 10C
C4002	B C 11D
C4003	B C 9C
C4004	A D 11D
C4005	B C 9D
C4006	A D 11C
C4007	B C 10D
C4008	B C 10D
C4009	B C 10D
C4010	B C 11C
C4011	B C 10F
C4012	A D 9E
C4014	B C 9E
C4015	B C 11D
C4016	A D 8E
C4017	B C 9D
C4031	A D 6L
C4032	B C 6L
C5001	A D 2P
C5002	A D 2N
C5003	A D 4P
C5004	A D 1J
C5006	A D 2M
C5101	A D 2M
C5102	A D 1K
C5103	B C 3L
C5104	A D 4M
C5105	A D 3L
C5106	A D 3J
C5107	A D 3L
C5202	A D 2G
C5203	A D 2H
C5204	A D 3H
C5206	A D 1F
C5207	A D 3F
C5301	A D 1E
C5302	A D 3G
C5303	A D 3G
C5305	A D 4H
C5307	A D 2E
C5308	A D 3E
C6005	A D 21N
C6006	B C 22M
C6007	A D 21J
C6008	B C 22M
C6012	A D 21O
C6013	B C 22P
C6016	B C 22O
C6020	B C 22N
C6021	B C 22N
C6027	B C 22L
C6028	B C 22L
C6032	B C 20K
C6037	A D 21K
C6038	B C 21L
C6052	B C 22O
C6053	B C 22P
C6055	B C 22O
C6056	B C 22P
C6501	A D 21M
C6502	B C 21M
C7011	A D 9A
C7012	B C 10A
C7013	B C 17A
C7014	B C 17A
C7160	B C 14K
C7165	B C 18A
C7166	B C 19A
C7167	B C 20A
C7202	A D 19O
CONNECTOR	
CN1	A D 16M
CN501	A D 21F
CN901	A D 6P
CN902	A D 10P
CN903	A D 14P
CN904	A D 17P
CN905	A D 20P
CN2001	A D 9O
CN2002	A D 19L
CN3001	A D 7L
CN3901	A D 16B
CN5001	A D 1P
CN6701	A D 20L
CN7001	A D 1C
CN7002	A D 2C
DIODE	
D1	A D 16P
D2	A D 16P
D4	A D 11M
D5	A D 12N
D201	A D 17E
D202	A D 17E
D203	A D 17E
D2201	A D 17I
D2251	A D 15J
D3001	A D 12H
D3002	A D 5E
D3003	A D 5C
D3004	A D 4E
D3005	A D 3E
D3007	A D 7C
D3008	B C 15C
D4001	A D 10F
D4002	A D 10E
D5001	B C 2M
D5101	A D 1M
D5102	A D 2K
D5103	A D 3K
D5105	A D 3K
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D5204	A D 3I
D5205	A D 1H
D5206	A D 2H
D5207	A D 2I
D5208	A D 2I
D5209	A D 2H
D5210	A D 3I
D5301	A D 2H
D5302	A D 4G
D5303	A D 4G
D5305	A D 2F
D6002	A D 22N
D7003	A D 9A
D7051	A D 22B
FUSE	
F5001	A D 2P
IC	
IC1	B C 13L
IC2	B C 10J
IC201	A D 19E
IC301	A D 6M
IC2201	B C 16K
IC3001	B C 12D
IC3002	B C 14F
IC3003	B C 19B
IC7002	A D 8A
COIL	
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K2002	B C 15O
K2003	B C 9N
K2004	B C 9O
K2005	B C 14N
K2006	B C 14N
K2251	B C 16L
K2252	B C 16M
K2253	B C 16M
K5101	A D 2K
K5102	A D 1N
L1	A D 15M
L2	A D 12N
L3	A D 10M
L4	A D 11L
L5	A D 13J
L12	A D 12L
L13	A D 10J
L15	A D 11P
L18	A D 14P
L19	A D 12P
L20	A D 12N
L22	A D 11M
L24	A D 12O
L27	A D 10J
L28	A D 12N
L31	A D 21F
L201	A D 18G
L202	A D 19E
L203	A D 19E
L204	A D 17E
L206	A D 17G
L301	A D 6M
L302	A D 7M
L303	A D 7N
L304	A D 8L
L401	A D 16N
L402	A D 17O
L2001	A D 14K
L2201	A D 16J
L2251	A D 14L
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L4001	A D 6L
L5201	A D 3H
L5202	A D 2G
L6001	A D 21J
L6002	A D 21O
L6501	A D 21N
L7201	A D 20O
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Q3	B C 15M
Q4	B C 15M
Q5	B C 15P
Q7	B C 13P
Q8	B C 12P
Q9	B C 12O
Q10	B C 11K
Q11	B C 12J
Q14	B C 12O
Q16	B C 11O
Q17	B C 12N
Q18	B C 10P
Q19	B C 11P
Q21	B C 10J
Q22	B C 10J
Q23	B C 10J
Q24	B C 12K
Q25	B C 11K
Q32	B C 10M
Q38	B C 12O
Q40	B C 12J
Q41	B C 10J
Q50	B C 14L
Q207	B C 17G
Q208	B C 16G
Q301	B C 7L
Q302	B C 6M
Q303	B C 8L
Q311	B C 6M
Q312	B C 5L
Q401	B C 16N
Q402	B C 16N
Q403	B C 16N
Q404	B C 16N
Q405	B C 17N
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Q2004	B C 13O
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Q2052	B C 14N
Q2053	B C 13N
Q2054	B C 13O
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Q2063	B C 8N
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Q2204	B C 18J
Q2251	B C 15I
Q2252	B C 15J
Q2253	B C 15J
Q2254	B C 15J
Q2255	B C 15J
Q3002	A D 5I
Q3003	A D 19I
Q3004	B C 6C
Q3005	B C 3E
Q3007	B C 16C
Q3901	B C 15E
Q4001	B C 12C
Q4002	B C 9E
Q4003	B C 9D
Q5101	A D 2L
Q5102	A D 3M
Q5301	A D 4G
Q5303	A D 1F
Q5304	A D 3G
Q5305	B C 4G
Q5306	B C 4G
Q5307	A D 3E
Q5321	A D 1F
Q6030	B C 21K
Q6031	B C 21L
Q6032	B C 21L
Q7001	B C 10A
Q7002	B C 10A
Q7003	B C 11A
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Q7010	B C 12A
Q7011	B C 13A
Q7012	B C 14B
Q7013	B C 14A
Q7014	B C 14A
Q7201	A D 19P
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R7	B C 11K
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R9	B C 12J
R10	A D 14K
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R22	B C 15M
R23	B C 11P
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R26	B C 14P
R27	B C 13P
R28	B C 13P
R29	B C 13P
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R43	B C 11J
R46	B C 10K
R48	B C 11J
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R50	B C 10J
R51	B C 11J
R52	B C 21G
R65	B C 11P
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R68	B C 11P
R71	B C 14L
R75	B C 11N
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R77	B C 15N
R78	B C 10F
R79	B C 12K
R84	B C 14J
R85	B C 15P
R88	B C 12J
R90	B C 12N
R93	B C 12O
R104	B C 12O
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R2060	B C 14O
R2061	B C 7O
R2062	B C 7P
R2063	A D 7O
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R2065	B C 8N
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R2205	B C 17M
R2206	B C 17L
R2207	B C 17M
R2208	B C 17L
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R2213	B C 18I
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R2216	B C 18J
R2217	B C 18J
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R3216	B C 7G
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R3254	B C 6K
R3255	B C 6J
R4001	B C 9E
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R4004	B C 11D
R4005	B C 10D
R4006	B C 10D
R4007	B C 9D
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R4012	B C 10E
R4013	B C 11E
R4015	B C 9E
R4016	B C 10F
R4017	B C 9E
R4020	B C 7D
R4021	B C 9E
R5101	A D 4M
R5102	A D 4M
R5103	A D 3M
R5104	A D 1L
R5106	A D 2L
R5107	A D 3K
R5108	B C 3L
R5109	A D 3M
R5110	B C 3L
R5111	B C 3K
R5112	B C 3K
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R5306	B C 1F
R5310	B C 3H
R5312	B C 4H
R5313	B C 4G
R5319	B C 2E
R5332	A D 3F
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R6031	B C 21K
R6032	B C 21L
R6033	B C 20K
R6050	B C 21O
R6051	A D 21P
R6052	B C 21O
R6056	B C 21P
R6080	B C 21N
R7001	B C 12A
R7002	B C 12A
R7003	B C 13A
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R7034	B C 7B
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R7161	B C 19A
R7162	B C 19B
R7163	B C 21B
R7202	B C 20O
R7203	B C 19P
R7204	A D 19P
SWITCH	
S3001	A D 18C
S3002	A D 4E
S7001	A D 22B
S7002	A D 18B
S7003	A D 16B
S7004	A D 7B
S7006	A D 6B
S7008	A D 5B
S7010	A D 4B
S7011	A D 4B
S7012	A D 3B
S7013	A D 2B
S7014	A D 2B
S7015	A D 1B
S7016	A D 17B
S7017	A D 16B
S7018	A D 9B
TEST POINT	
TP106	A D 19E
TP111	A D 19F
TP2253	A D 19E
TP2254	A D 19E
TP3901	B C 14D
TP3902	B C 13D
TP3903	B C 15E
TP3904	B C 13E
TP3905	B C 14E
TP3906	B C 14D
TP3907	B C 14D
TP3908	B C 15E
TP4001	A D 20F
OTHER	
B5	B C 15P
B10	B C 11N
B12	B C 9G
B17	B C 10J
B60	B C 11O
B65	B C 10J
B75	B C 14L
B203	A D 19D
B204	A D 17H
B206	B C 17G
B214	B C 17G
B301	B C 6M
B302	B C 8L
B2001	B C 18J
B2002	B C 18M
B2051	A D 7N
B2201	A D 19I
B2222	B C 17I
B3001	A D 10B
B3070	B C 13F
B3962	B C 15E
B3966	A D 14G
B3971	B C 13F
B4001	B C 3E
B5001	A D 3P
B5002	A D 4P
B6510	B C 21L
B6511	B C 21L
B7001	B C 1C
B7160	B C 13P
CP3001	A D 6K
CP3002	B C 6K
CP4001	A D 3G
CP4002	B C 4G
DI7001	A D 12A
FC5001	A D 2P
FC5002	A D 3P
J7105	A D 20A
JS3001	A D 8G
LF5001	A D 4P
LF5002	A D 3N
PC3001	A D 15F
PC3002	A D 9F
PC5101	A D 4K
T2051	A D 7O
T2052	A D 6O
T5001	A D 1K
TU6001	A D 22P
VA5003	A D 2O
VR2251	A D 20H
X1	A D 12K
X2	A D 12K
X3001	A D 14E
X3002	A D 14E

COMPONENT PARTS LOCATION GUIDE <MAIN> LPB10170-004A

REF.NO.	LOCATION
CAPASITOR	
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C2	B C 15M
C3	B C 15M
C4	B C 16M
C5	A D 14M
C6	A D 14M
C7	B C 15N
C8	B C 15N
C9	A D 11M
C10	B C 13N
C11	B C 13N
C12	B C 12N
C13	B C 13N
C14	B C 12N
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C18	A D 11N
C19	A D 11M
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C21	B C 11M
C22	A D 12M
C23	B C 12M
C24	A D 11L
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C26	B C 11L
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C43	B C 13J
C44	B C 14M
C45	B C 13K
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C53	B C 12K
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C60	A D 11P
C61	B C 13N
C62	B C 12M
C63	B C 11N
C64	B C 10J
C65	A D 14N
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C70	B C 16M
C72	B C 14P
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C87	B C 12M
C88	B C 11M
C90	B C 9J
C92	B C 11M
C97	B C 13J
C99	B C 13J
C103	B C 14P
C106	B C 12O
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C110	B C 12N
C114	B C 10J
C120	A D 11K
C125	B C 13K
C136	B C 12N
C142	B C 21F
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C207	B C 18F
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C211	B C 17F
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C213	A D 17E
C214	B C 17F
C215	B C 17F
C216	A D 16F
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C218	A D 17G
C222	A D 18G
C225	A D 16F
C301	B C 6L
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C2007	A D 15O
C2008	A D 15O
C2009	B C 14O
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C2062	B C 7O
C2063	B C 7P
C2064	A D 7O
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C2202	A D 17M
C2203	A D 17L
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C2205	A D 16M
C2206	A D 16M
C2207	B C 16M
C2208	B C 15K
C2209	A D 15K
C2210	A D 16K
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C2227	A D 16J
C2228	B C 18K
C2229	B C 18K
C2230	A D 18K
C2231	A D 18K
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CN501	A D 21F
CN901	A D 6P
CN902	A D 10P
CN903	A D 14P
CN904	A D 17P
CN905	A D 20P
CN2001	A D 9O
CN2002	A D 19L
CN3001	A D 7L
CN3901	A D 16B
CN5001	A D 1P
CN6701	A D 20L
CN7001	A D 1C
CN7002	A D 2C
DIODE	
D1	A D 16P
D2	A D 16P
D4	A D 11M
D5	A D 12N
D201	A D 17E
D202	A D 17E
D203	A D 17E
D2201	A D 17I
D2251	A D 15J
D3001	A D 12H
D3002	A D 5E
D3003	A D 5C
D3004	A D 4E
D3005	A D 3E
D3007	A D 7C
D3008	B C 15C
D4001	A D 10F
D4002	A D 10E
D5001	B C 2M
D5101	A D 1M
D5102	A D 2K
D5103	A D 3K
D5105	A D 3K
D5203	A D 3I
D5204	A D 3I
D5205	A D 1H
D5206	A D 2H
D5207	A D 2I
D5208	A D 2I
D5209	A D 2H
D5210	A D 3I
D5301	A D 2H
D5302	A D 4G
D5303	A D 4G
D5305	A D 2F
D6002	A D 22N
D7003	A D 9A
D7051	A D 22B
DI7001	A D 12A
FUSE	
F5001	A D 2P
IC	
IC1	B C 13L
IC2	B C 10J
IC201	A D 19E
IC301	A D 6M
IC2201	B C 16K
IC3001	B C 12D
IC3002	B C 14F
IC3003	B C 19B
IC7002	A D 8A
COIL	
L1	A D 15M
L2	A D 12N
L3	A D 10M
L4	A D 11L
L5	A D 13J
L12	A D 12L
L13	A D 10J
L15	A D 11P
L18	A D 14P
L19	A D 12P
L20	A D 12N
L22	A D 11M
L24	A D 12O
L27	A D 10J
L28	A D 12N
L31	A D 21F
L201	A D 18G
L202	A D 19E
L203	A D 19E
L204	A D 17E
L206	A D 17G
L301	A D 6M
L302	A D 7M
L303	A D 7N
L304	A D 8L
L401	A D 16N
L402	A D 17O
L2001	A D 14K
L2201	A D 16J
L2251	A D 14L
L2252	A D 15K
L4001	A D 6L
L5201	A D 3H
L5202	A D 2G
L6001	A D 21J
L6002	A D 21O
L6501	A D 21N
L7201	A D 20O
TRANSISTOR	
Q1	B C 15M
Q2	B C 15M
Q3	B C 15M
Q4	B C 15M
Q5	B C 15P
Q7	B C 13P
Q8	B C 12P
Q9	B C 12O
Q10	B C 11K
Q11	B C 12J
Q14	B C 12O
Q16	B C 11O
Q17	B C 12N
Q18	B C 10P
Q19	B C 11P
Q21	B C 10J
Q22	B C 10J
Q23	B C 10J
Q24	B C 12K
Q25	B C 11K
Q32	B C 10M
Q38	B C 12O
Q40	B C 12J
Q41	B C 10J
Q50	B C 14L
Q207	B C 17G
Q208	B C 16G
Q301	B C 7L
Q302	B C 6M
Q303	B C 8L
Q311	B C 6M
Q312	B C 5L
Q401	B C 16N
Q402	B C 16N
Q403	B C 16N
Q404	B C 16N
Q405	B C 17N
Q2001	B C 14O
Q2002	B C 14O
Q2003	B C 14N
Q2004	B C 13O
Q2051	B C 7O
Q2052	B C 14N
Q2053	B C 13N
Q2054	B C 13O
Q2055	B C 14N
Q2061	B C 7O
Q2062	B C 8N
Q2063	B C 8N
Q2201	B C 18I
Q2202	B C 17I
Q2203	B C 18J
Q2204	B C 18J
Q2251	B C 15I
Q2252	B C 15J
Q2253	B C 15J
Q2254	B C 15J
Q2255	B C 15J
Q3002	A D 5I
Q3003	A D 19I
Q3004	B C 6C
Q3005	B C 3E
Q3007	B C 16C
Q3901	B C 15E
Q4001	B C 12C
Q4002	B C 9E
Q4003	B C 9D
Q5101	A D 2L
Q5102	A D 3M
Q5301	A D 4G
Q5303	A D 1F
Q5304	A D 3G
Q5305	B C 4G
Q5306	B C 4G
Q5307	A D 3E
Q5321	A D 1F
Q6030	B C 21K
Q6031	B C 21L
Q6032	B C 21L
Q7001	B C 10A
Q7002	B C 10A
Q7003	B C 11A
Q7004	B C 11A
Q7005	B C 11A
Q7006	B C 11A
Q7007	B C 12A
Q7008	B C 12A
Q7009	B C 12A
Q7010	B C 12A
Q7011	B C 13A
Q7012	B C 14B
Q7013	B C 14A
Q7014	B C 14A
Q7201	A D 19P
RESISTOR	
R1	B C 13M
R2	B C 13N
R3	B C 12N
R5	B C 10K
R6	B C 12L
R7	B C 11K
R8	B C 12J
R9	B C 12J
R10	A D 14K
R21	B C 16M
R22	B C 15M
R23	B C 11P
R25	B C 14P
R26	B C 14P
R27	B C 13P
R28	B C 13P
R29	B C 13P
R30	B C 11P
R31	B C 12O
R32	B C 11P
R33	B C 11N
R34	B C 11N
R35	B C 11N
R36	B C 12K
R38	B C 11K
R39	B C 12K
R40	B C 12K
R41	B C 11J
R42	B C 11J
R43	B C 11J
R46	B C 10K
R48	B C 11J
R49	B C 10K
R50	B C 10J
R51	B C 11J
R52	B C 21G
R65	B C 11P
R66	B C 11M
R68	B C 11P
R71	B C 14L
R75	B C 11N
R76	B C 11P
R77	B C 15N
R78	B C 10F
R79	B C 12K
R84	B C 14J
R85	B C 15P
R88	B C 12J
R90	B C 12N
R93	B C 12O
R104	B C 12O
R117	B C 11K
R118	B C 13K
R201	B C 19F
R202	B C 17E
R203	B C 17E
R204	B C 17E
R208	B C 18E
R209	B C 17F
R210	B C 17E
R211	B C 17F
R212	B C 17F
R213	B C 17G
R216	B C 18F
R220	B C 18F
R224	B C 17G
R225	B C 16G
R226	B C 19E
R301	B C 6L
R302	B C 6L
R303	B C 7L
R304	B C 7L
R305	B C 8L
R306	B C 7M
R307	B C 8L
R308	B C 8L
R309	B C 8M
R310	B C 7M
R311	B C 7N
R312	B C 6N
R313	B C 6M
R314	B C 5M
R315	B C 5M
R316	B C 6M
R317	B C 7L
R318	B C 8L
R321	B C 6L
R326	B C 7M
R327	B C 7M
R328	B C 7N
R329	B C 6M
R401	B C 16O
R402	B C 16N
R403	B C 16N
R404	B C 16N
R405	B C 16N
R406	B C 16N
R407	B C 17N
R408	B C 17N
R2001	B C 13K
R2002	B C 13K
R2003	B C 13K
R2004	B C 13K
R2005	B C 14K
R2006	B C 14K
R2007	B C 14K
R2008	B C 14K
R2009	B C 14K
R2010	B C 14K
R2013	B C 15N
R2014	B C 15O
R2015	B C 15O
R2016	B C 14O
R2017	B C 14O
R2018	B C 14N
R2019	B C 14N
R2020	B C 13O
R2041	A D 11O
R2051	B C 8N
R2052	B C 8N
R2053	B C 8N
R2054	B C 7O
R2055	B C 7P
R2056	A D 8O
R2057	B C 13N
R2058	B C 13N
R2059	B C 13O
R2060	B C 14O
R2061	B C 7O
R2062	B C 7P
R2063	A D 7O
R2064	B C 8N
R2065	B C 8N
R2201	B C 17L
R2202	B C 17L
R2203	B C 17L
R2204	B C 17L
R2205	B C 17M
R2206	B C 17L
R2207	B C 17M
R2208	B C 17L
R2209	B C 18J
R2210	B C 18I
R2211	B C 18J
R2212	B C 18J
R2213	B C 18I
R2214	B C 18J
R2215	B C 18J
R2216	B C 18J
R2217	B C 18J
R2218	B C 18K
R2219	B C 18K
R2220	B C 17I
R2222	B C 17M
R2223	B C 16M
R2224	B C 15J
R2225	B C 15J
R2226	B C 18L
R2227	B C 18L
R2228	B C 17M
R2229	B C 17L
R2230	B C 18L
R2231	B C 17L
R2232	B C 18L
R2233	B C 17L
R2234	B C 18J
R2235	B C 18K
R2236	B C 18L
R2237	B C 18K
R2238	B C 18L
R2239	B C 16J
R2240	B C 17I
R2251	B C 15K
R2252	B C 15L
R2253	B C 15K
R2254	A D 16I
R2255	B C 16J
R2256	B C 15J
R2257	B C 15K
R3011	B C 9C
R3012	B C 9C
R3013	B C 9C
R3014	B C 9C
R3015	B C 9C
R3016	B C 10C
R3017	B C 10C
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R3029	B C 12C
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R3032	B C 15C
R3033	B C 16C
R3034	B C 13C
R3035	B C 14C
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R3097	B C 11F
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R3104	B C 11E
R3105	B C 11E
R3106	B C 11E
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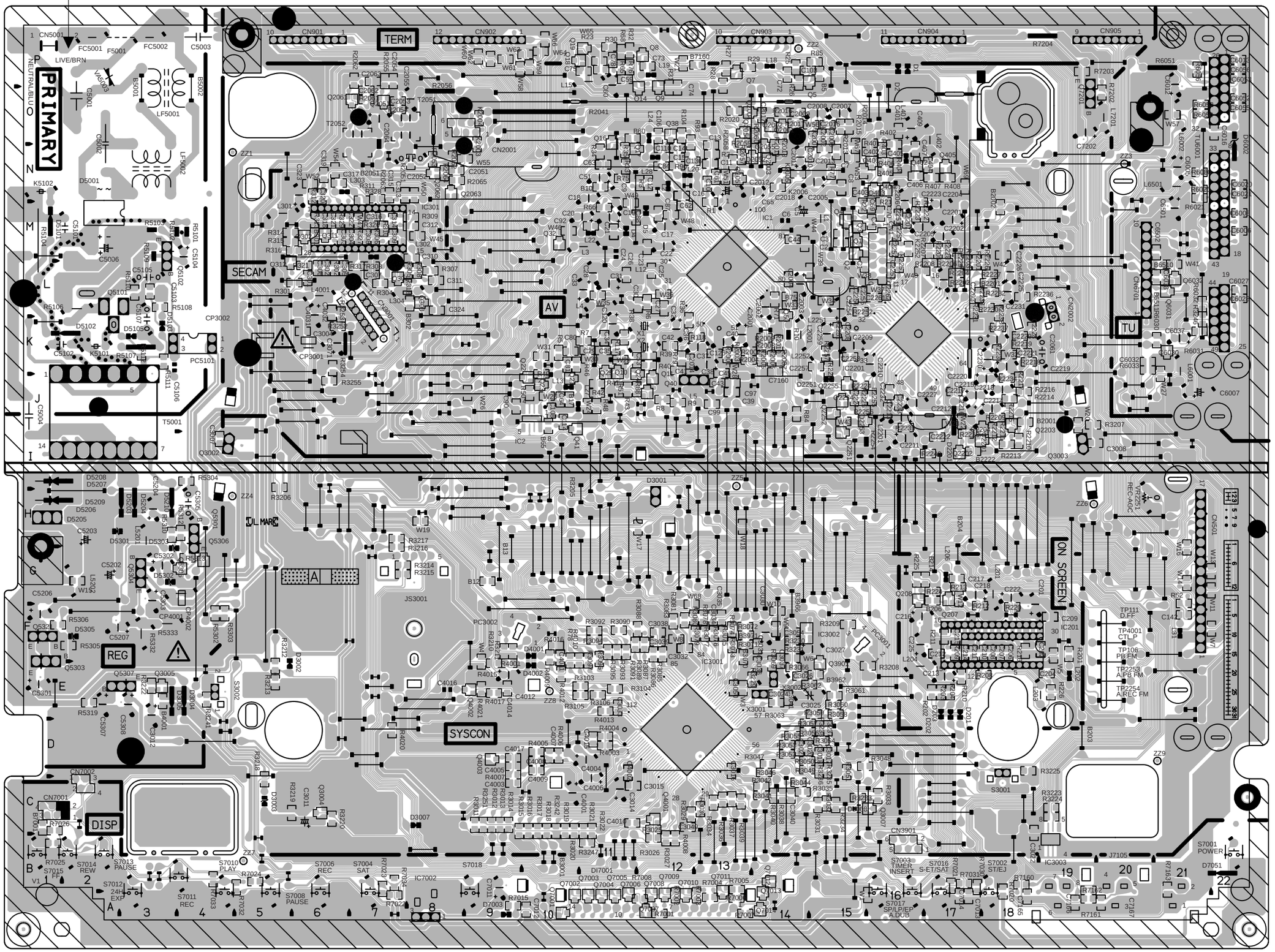
R3206	B C 5I
R3207	B C 19J
R3208	B C 16E
R3209	B C 15F
R3210	B C 9F
R3211	B C 9F
R3212	B C 5E
R3213	B C 5E
R3214	B C 7G
R3215	B C 7G
R3216	B C 7G
R3217	B C 7H
R3218	B C 5C
R3219	B C 6C
R3220	B C 6C
R3222	B C 3E
R3223	B C 19C
R3224	B C 19C
R3225	B C 18D
R3229	B C 14E
R3230	B C 14F
R3231	B C 14F
R3233	B C 15C
R3234	B C 15C
R3235	B C 15D
R3236	B C 15D
R3247	B C 11B
R3251	B C 9C
R3252	B C 6K
R3253	B C 6L
R3254	B C 6K
R3255	B C 6J
R4001	B C 9E
R4003	B C 11D
R4004	B C 11D
R4005	B C 10D
R4006	B C 10D
R4007	B C 9D
R4008	B C 12B
R4009	B C 10F
R4010	B C 11F
R4012	B C 10E
R4013	B C 11E
R4015	B C 9E
R4016	B C 10F
R4017	B C 9E
R4020	B C 7D
R4021	B C 9E
R5101	A D 4M
R5102	A D 4M
R5103	A D 3M
R5104	A D 1L
R5106	A D 2L
R5107	A D 3K
R5108	B C 3L
R5109	A D 3M
R5110	B C 3L
R5111	B C 3K
R5112	B C 3K
R5302	B C 4F
R5303	B C 4F
R5304	B C 4I
R5305	B C 2F
R5306	B C 1F
R5310	B C 3H
R5312	B C 4H
R5313	B C 4G
R5319	B C 2E
R5332	A D 3F
R5333	A D 3F
R6020	B C 21N
R6021	B C 21N
R6030	B C 21K
R6031	B C 21K
R6032	B C 21L
R6033	B C 20K
R6050	B C 21O
R6051	A D 21P
R6052	B C 21O
R6056	B C 21P
R6080	B C 21N
R7001	B C 12A
R7002	B C 12A
R7003	B C 13A
R7004	B C 13A
R7005	B C 13B
R7006	B C 13A
R7007	B C 13A
R7008	B C 12A
R7015	B C 9A
R7020	B C 18A
R7021	B C 17B
R7022	B C 7A
R7023	B C 7B
R7024	B C 5B
R7025	B C 1B
R7026	B C 1C
R7030	B C 17B
R7031	B C 17B
R7032	B C 5B
R7033	B C 4B
R7034	B C 7B
R7160	B C 18B
R7161	B C 19A
R7162	B C 19B
R7163	B C 21B
R7202	B C 20O
R7203	B C 19P
R7204	A D 19P
SWITCH	
S3001	A D 18C
S3002	A D 4E
S7001	A D 22B
S7002	A D 18B
S7003	A D 16B
S7004	A D 7B
S7006	A D 6B
S7008	A D 5B
S7010	A D 4B
S7011	A D 4B
S7012	A D 3B
S7013	A D 2B
S7014	A D 2B
S7015	A D 1B
S7016	A D 17B
S7017	A D 16B
S7018	A D 9B
TESTPOINT	
TP106	A D 19E
TP111	A D 19F
TP2253	A D 19E
TP2254	A D 19E
TP3901	B C 14D
TP3902	B C 13D
TP3903	B C 15E
TP3904	B C 13E
TP3905	B C 14E
TP3906	B C 14D
TP3907	B C 14D
TP3908	B C 15E
TP4001	A D 20F
OTHER	
B5	B C 15P
B10	B C 11N
B12	B C 9G
B17	B C 10J
B60	B C 11O
B65	B C 10J
B75	B C 14L
B203	A D 19D
B204	A D 17H
B206	B C 17G
B214	B C 17G
B301	B C 6M
B302	B C 8L
B2001	B C 18J
B2002	B C 18M
B2051	A D 7N
B2201	B C 18L
B2221	A D 19I
B2222	B C 17I
B3001	A D 10B
B3070	B C 13F
B3962	B C 15E
B3966	A D 14G
B3971	B C 13F
B4001	B C 3E
B5001	A D 3P
B5002	A D 4P
B6510	B C 21L
B6511	B C 21L
B7001	B C 1C
B7160	B C 13P
CP3001	A D 6K
CP3002	B C 6K
CP4001	A D 3G
CP4002	B C 4G
FC5001	A D 2P
FC5002	A D 3P
J7105	A D 20A
JS3001	A D 8G
K2001	B C 15O
K2002	B C 15O
K2003	B C 9N
K2004	B C 9O
K2005	B C 14N
K2006	B C 14N
K2251	B C 16L
K2252	B C 16M
K2253	B C 16M
K5101	A D 2K
K5102	A D 1N
LF5001	A D 4P
LF5002	A D 3N
PC3001	A D 15F
PC3002	A D 9F
PC5101	A D 4K
T2051	A D 7O
T2052	A D 6O
T5001	A D 1K
TU6001	A D 22P
VA5003	A D 2O
VR2251	A D 20H
X1	A D 12K
X2	A D 12K
X3001	A D 14E
X3002	A D 14E

4.17 MAIN CIRCUIT BOARD [FOR HR-S8960EX AND HR-S8965EK]

DANGEROUS VOLTAGE

<03>MAIN
LPB10170-004A

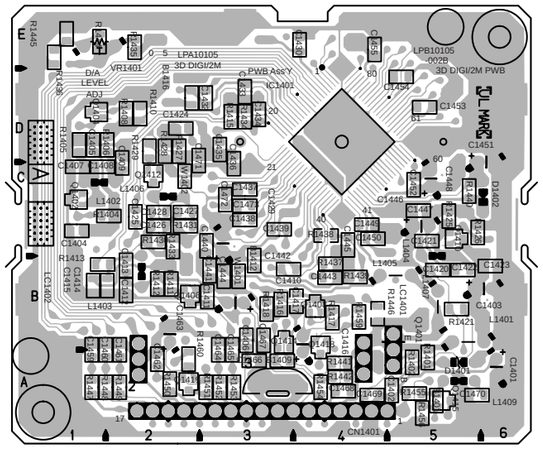


4.18 3D DIGITAL/2M CIRCUIT BOARD

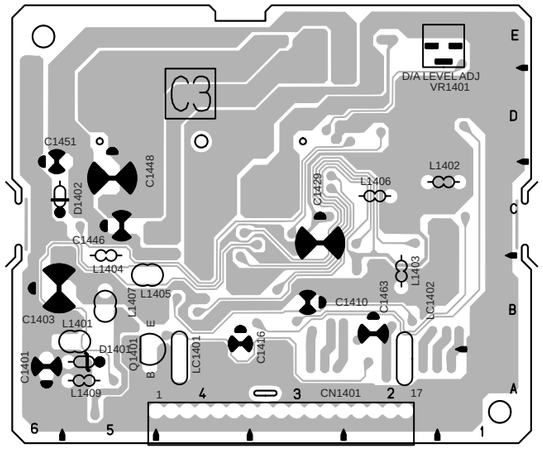
[FOR HR-S8960AG]

<05> 3D DIGITAL/2M
LPB10105-002B

- FOIL SIDE (B) -



- COMPONENT SIDE (A) -



COMPONENT PARTS LOCATION GUIDE <3D DIGITAL/2M> LPB10105-002B

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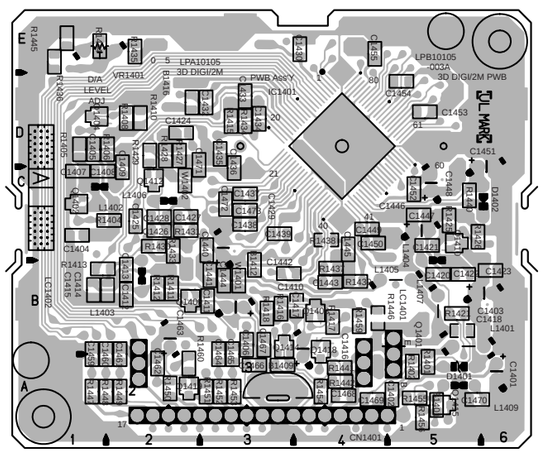
CAPACITOR		C1417	B C 4B	C1437	B C 3C	C1454	B C 5D	**CONNECTOR**		L1407	A D 5B	**RESISTOR**		R1426	B C 6C	R1445	B C 1E
C1401	A D 6A	C1420	B C 5B	C1438	B C 3C	C1455	B C 4E	CN1401	A D 5A	L1409	A D 5A	R1401	B C 5A	R1427	B C 2D	R1446	B C 4B
C1402	B C 5A	C1421	B C 5C	C1439	B C 3C	C1459	B C 1B			LC1401	A D 4A	R1402	B C 5A	R1428	B C 2D	R1447	B C 1A
C1403	A D 6B	C1422	B C 5B	C1440	B C 3C	C1460	B C 2B	**DIODE**		LC1402	A D 2A	R1404	B C 2C	R1429	B C 2D	R1448	B C 2A
C1404	B C 1C	C1423	B C 6B	C1441	B C 3B	C1461	B C 2B	D1401	A D 6A			R1405	B C 1D	R1430	B C 2C	R1449	B C 2A
C1405	B C 1D	C1424	B C 2D	C1442	B C 4B	C1462	B C 2A	D1402	A D 6C	**TRANSISTOR**		R1406	B C 2D	R1431	B C 2C	R1450	B C 2A
C1406	B C 3B	C1425	B C 2C	C1443	B C 4B	C1463	A D 2B			Q1401	A D 5B	R1408	B C 2D	R1433	B C 2C	R1451	B C 3A
C1407	B C 1C	C1426	B C 2C	C1444	B C 3B	C1464	B C 3B	**IC**		Q1402	B C 1C	R1410	B C 2D	R1434	B C 3D	R1452	B C 3A
C1408	B C 2C	C1427	B C 2C	C1445	B C 4C	C1465	B C 3B	IC1401	B C 4D	Q1404	B C 1D	R1411	B C 2B	R1435	B C 2E	R1453	B C 3A
C1409	B C 2C	C1428	B C 2C	C1446	A D 5C	C1466	B C 3A			Q1406	B C 2B	R1412	B C 2B	R1436	B C 1E	R1454	B C 4A
C1410	A D 3B	C1429	A D 3C	C1447	B C 5C	C1467	B C 3B	**COIL**		Q1408	B C 4B	R1413	B C 2B	R1437	B C 4B	R1455	B C 5A
C1411	B C 3B	C1430	B C 4E	C1448	A D 5C	C1468	B C 4A	L1401	A D 5B	Q1410	B C 5C	R1415	B C 3D	R1438	B C 4C	R1456	B C 5A
C1412	B C 2B	C1432	B C 3D	C1449	B C 4C	C1469	B C 4A	L1402	A D 2C	Q1412	B C 2C	R1416	B C 3B	R1439	B C 4B	R1459	B C 4B
C1413	B C 2B	C1433	B C 3D	C1450	B C 4C	C1470	B C 5A	L1403	A D 2B	Q1414	B C 3B	R1417	B C 4B	R1440	B C 5C	R1460	B C 2A
C1414	B C 2B	C1434	B C 3D	C1451	A D 6D	C1471	B C 3D	L1404	A D 5C	Q1415	B C 5A	R1418	B C 3B	R1441	B C 4A		
C1415	B C 1B	C1435	B C 3D	C1452	B C 5C	C1472	B C 3C	L1405	A D 4B	Q1418	B C 4B	R1421	B C 5B	R1442	B C 4A	**OTHER**	
C1416	A D 4A	C1436	B C 3C	C1453	B C 5D	C1473	B C 3C	L1406	A D 2C	Q1419	B C 2A	R1425	B C 5C	R1444	B C 2E	VR1401	A D 2E

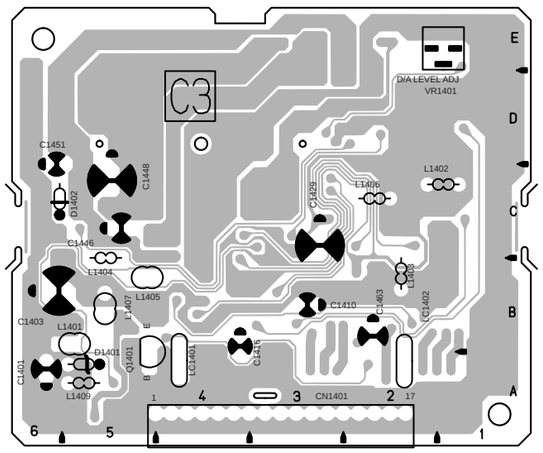
[FOR HR-S8960EX AND HR-S8965EK]

<05> 3D DIGITAL/2M
LPB10105-003A

- FOIL SIDE (B) -



- COMPONENT SIDE (A) -



COMPONENT PARTS LOCATION GUIDE <3D DIGITAL/2M> LPB10105-003A

REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION
CAPASITOR		C1418	B C 5B	C1438	B C 3C	C1459	B C 1B	**DIODE**		**TRANSISTOR**		R1406	B C 2D	R1433	B C 2C	R1452	B C 3A
C1401	A D 6A	C1420	B C 5B	C1439	B C 3C	C1460	B C 2B	D1401	A D 5A	Q1401	A D 5B	R1408	B C 2D	R1434	B C 3D	R1453	B C 3A
C1402	B C 5A	C1421	B C 5C	C1440	B C 3C	C1461	B C 2B	D1402	A D 6C	Q1402	B C 1C	R1410	B C 2D	R1435	B C 2E	R1454	B C 4A
C1403	A D 5B	C1422	B C 5B	C1441	B C 3B	C1462	B C 2A			Q1404	B C 1D	R1411	B C 2B	R1436	B C 1E	R1455	B C 5A
C1404	B C 1C	C1423	B C 6B	C1442	B C 3B	C1463	A D 2B	**IC**		Q1406	B C 2B	R1412	B C 2B	R1437	B C 4B	R1456	B C 5A
C1405	B C 1D	C1424	B C 2D	C1443	B C 4B	C1464	B C 3B	IC1401	B C 4D	Q1408	B C 4B	R1413	B C 1B	R1438	B C 4C	R1459	B C 4B
C1406	B C 3B	C1425	B C 2C	C1444	B C 3B	C1465	B C 3B			Q1412	B C 2C	R1416	B C 3B	R1440	B C 5C	R1460	B C 2A
C1407	B C 1C	C1426	B C 2C	C1445	B C 4C	C1466	B C 3A	**COIL**		Q1414	B C 3B	R1417	B C 4B	R1441	B C 4A		
C1408	B C 1C	C1427	B C 2C	C1446	A D 5C	C1467	B C 3B	L1401	A D 5B	Q1415	B C 5A	R1418	B C 3B	R1442	B C 4A	**OTHER**	
C1409	B C 2C	C1428	B C 2C	C1447	B C 5C	C1468	B C 4A	L1402	A D 2C	Q1418	B C 4B	R1421	B C 5B	R1444	B C 1E	B1409	B C 3A
C1410	A D 3B	C1429	A D 3C	C1448	A D 5C	C1469	B C 4A	L1403	A D 2B	Q1419	B C 2A	R1425	B C 5C	R1445	B C 1E	B1412	B C 3B
C1411	B C 3B	C1430	B C 4E	C1449	B C 4C	C1470	B C 5A	L1404	A D 5C			R1426	B C 5C	R1446	B C 4B	B1416	B C 2D
C1412	B C 2B	C1432	B C 3D	C1450	B C 4C	C1471	B C 2D	L1405	A D 4B	**RESISTOR**		R1427	B C 2D	R1447	B C 1A	LC1401	A D 4A
C1413	B C 2B	C1433	B C 3D	C1451	A D 5D	C1472	B C 3C	L1406	A D 2C	R1401	B C 5A	R1428	B C 2D	R1448	B C 2A	LC1402	A D 2A
C1414	B C 2B	C1434	B C 3D	C1452	B C 5C	C1473	B C 3C	L1407	A D 5B	R1402	B C 5A	R1429	B C 2D	R1449	B C 2A	VR1401	A D 1E
C1415	B C 1B	C1435	B C 3D	C1453	B C 5D			L1409	A D 5A	R1404	B C 2C	R1430	B C 2C	R1450	B C 2A		
C1416	A D 4A	C1436	B C 3C	C1454	B C 5D	**CONECTOR**				R1405	B C 1D	R1431	B C 2C	R1451	B C 3A		
C1417	B C 4B	C1437	B C 3C	C1455	B C 4E	CN1401	A D 5A										

4.19 VOLTAGE CHARTS

<MAIN>

MODE PIN NO.	REC	PLAY
IC1		
1	1.6	2.2
2	2.8	2.8
3	2.5	2.5
4	1.9	1.4
5	1.9	1.4
6	2.3	2.1
7	2.0	0.7
8	0	0
9	2.6	3.0
10	2.4	2.5
11	3.0	3.1
12	2.8	2.4
13	3.0	3.1
14	3.6	2.4
15	0	0
16	2.8	2.8
17	1.5	1.5
18	2.8	2.8
19	0	3.8
20	2.8	2.8
21	1.5	1.9
22	2.8	2.8
23	3.0	2.8
24	5.0	5.0
25	0.3	0
26	0	0
27	1.3	2.3
28	0	2.3
29	1.8	1.9
30	2.1	2.1
31	0	0
32	2.5	2.5
33	5.0	5.0
34	2.7	2.5
35	5.0	0
36	2.5	2.1
37	2.3	1.2
38	2.1	1.6
39	1.3	2.7
40	1.6	2.1
41	0	2.1
42	2.1	4.6
43	0	0
44	4.6	2.1
45	4.6	4.6
46	2.8	4.6
47	2.5	2.9
48	5.0	2.6
49	2.5	5.0
50	2.8	2.5
51	2.8	2.8
52	0	0
53	2.5	2.5
54	0	0
55	0	0
56	0	0
57	0	0
58	0	0
59	0	0
60	0	0
61	0	0
62	0	0
63	0	0
64	0	0
65	2.0	2.0
66	0	0
67	0	0
68	0	0
69	0	0
70	0	0
71	0	0
72	0	0
73	3.0	3.1
74	0	0
75	3.1	0
76	0.3	4.6
77	0	0
78	0	0
79	5.0	5.0
80	0	5.0
81	0	0
82	0	0
83	0	0
84	2.4	2.3
85	0	2.3
86	2.4	2.3
87	5.0	5.0
88	0	0
89	0	0
90	0	0
91	0	2.2
92	2.6	0
93	0	0.5
94	0	0
95	0	2.5
96	2.5	2.5
97	2.5	2.5
98	0	0
99	0	2.5
100	0	0

MODE PIN NO.	REC	PLAY
IC201		
1	0	0
2	2.6	2.6
3	4.9	4.9
4	0	0
5	4.0	-
6	2.4	2.4
7	2.4	2.4
8	4.9	5.0
9	3.3	3.2
10	4.5	4.5
11	4.8	4.7
12	4.9	5.0
13	2.7	2.8
14	2.8	2.8
15	0	0
16	1.2	1.2
17	0	0
18	4.9	5.0
19	2.3	2.3
20	0	0
21	2.3	2.3
22	1.1	1.4
23	4.9	5.0
24	2.8	2.9
25	2.4	2.5
26	4.9	5.0
27	3.9	-
28	3.5	3.6
29	4.9	5.0
30	4.9	5.0
IC2201		
1	2.4	2.4
2	0	0
3	2.4	2.4
4	0	0
5	0	0
6	0	2.5
7	2.0	0
8	0	0
9	0	0
10	0	0
11	0	0
12	2.0	2.0
13	0	0
14	0	0
15	0	0
16	2.4	2.5
17	0.5	0.7
18	2.5	2.5
19	2.5	2.5
20	2.5	0.3
21	2.5	0
22	2.5	0.6
23	0	0
24	2.5	0.6
25	4.9	5.0
26	2.5	0
27	0	-
28	4.2	2.3
29	4.1	1.8
30	3.8	1.7
31	0.9	2.7
32	2.5	2.5
33	2.5	2.5
34	0.4	0.7
35	2.5	2.4
36	0	0
37	1.6	1.6
38	0	0
39	0	0
40	5.0	5.0
41	0	0
42	4.6	4.6
43	4.6	4.6
44	3.3	3.3
45	0	0
46	4.8	4.8
47	2.5	2.5
48	2.5	2.5
49	0.2	0.2
50	0.2	0.2
51	0	0
52	0	0
53	4.4	4.4
54	0	0
55	0	0
56	0	0
57	4.5	4.4
58	8.4	8.4
59	4.6	4.5
60	0	0
61	2.5	2.5
62	2.4	2.4
63	4.4	4.5
64	4.5	4.5
IC3001		
1	-	2.5
2	0	0
3	-	2.5
4	2.5	2.5

MODE PIN NO.	REC	PLAY
5	0.5	1.1
6	2.5	2.5
7	2.4	2.4
8	2.5	2.5
9	4.9	5.0
10	4.9	4.9
11	0	0
12	1.2	1.3
13	0	2.5
14	4.5	4.5
15	4.8	4.8
16	4.9	4.9
17	4.3	4.3
18	0	0
19	4.9	4.9
20	4.5	4.5
21	3.8	3.9
22	4.2	2.5
23	0	0
24	4.8	4.8
25	0	0
26	4.9	4.9
27	0	0
28	0	0
29	0	4.8
30	4.4	4.4
31	4.9	4.9
32	4.9	4.9
33	0	0
34	4.4	4.4
35	2.5	2.5
36	4.9	4.9
37	4.4	0
38	0	3.9
39	4.4	4.4
40	0	0
41	4.8	4.8
42	4.4	4.4
43	0	0
44	0	0
45	4.9	4.9
46	0	0
47	2.8	2.8
48	0	0
49	4.5	4.6
50	4.6	4.6
51	4.4	4.4
52	4.7	4.8
53	4.5	4.5
54	-	-
55	-	-
56	4.9	4.9
57	0	4.9
58	4.9	4.9
59	0	0
60	0	0
61	4.2	4.3
62	0	0
63	0	0
64	1.5	1.5
65	0.9	1.3
66	4.9	4.9
67	2.4	-
68	0	0
69	2.4	2.5
70	4.9	4.9
71	4.9	4.9
72	4.9	5
73	4.7	4.8
74	0	0
75	-	3.9
76	-	-
77	0	0
78	0	0
79	0	4.9
80	0	0
81	4.9	4.9
82	4.9	4.9
83	-	-
84	0	0
85	4.9	0
86	4.9	0
87	0	0
88	4.7	0
89	0	0
90	4.8	0
91	-	3.7
92	-	4.1
93	3.4	-
94	-	-
95	-	-
96	-	-
97	-	-
98	0.7	0.7
99	0	-
100	-	-
101	2.6	2.6
102	2.6	2.6
103	4.9	4.9
104	4.9	0
105	4.9	0

MODE PIN NO.	REC	PLAY
106	0	4.8
107	1.3	1.6
108	1.3	1.3
109	4.9	4.9
110	0	0
111	0	0
112	2.4	2.3
IC3002		
1	4.9	4.9
2	4.9	4.9
3	0	0
4	0	0
IC3003		
1	0	0
2	0	0
3	0	0
4	0	0
5	-	-
6	-	4.0
7	0	0
8	4.9	4.9
IC7002		
1	4.8	4.8
2	4.9	4.9
3	0	0
CN1		
1	0	0
2	0	0
3	0	0
4	2.4	2.2
5	2.4	2.2
6	2.4	2.3
7	2.5	0
8	2.5	0
9	2.5	0
10	0	0
11	0	0
CN501		
1	2.6	2.6
2	0	0
3	2.4	2.5
4	4.9	5.0
5	2.1	2.1
6	0.3	4.4
7	3.3	3.3
8	0	0
9	2.8	2.8
10	0	0
11	4.6	4.6
12	4.6	4.6
13	0	0
14	0.7	0.7
15	0	-
16	0	0
17	-	-
CN901		
1	4.6	4.6
2	4.6	4.6
3	0.3	4.3
4	0	0
5	2.5	2.3
6	0	0
7	3.6	2.4
8	0	0
9	2.8	2.8
10	5.0	5.0
CN902		
1	2.7	2.7
2	0	0
3	0	0
4	2.4	2.1
5	1.3	2.3
6	4.9	4.9
7	0	0
8	0	0
9	2.3	2.3
10	0	0
11	0	0
12	2.3	2.3
CN903		
1	4.7	4.7
2	0	0
3	0	0
4	0	0
5	0.7	0.7
6	10.7	10.7
7	10.7	10.7
8	4.1	4.0
9	4.0	-
10	0	0
CN904		
1	0	0
2	4.9	4.9
3	0	0
4	0	0
5	0	0
6	0	0
7	0	0
8	0	0
9	0	0
10	0	0

MODE PIN NO.	REC	PLAY
11	0	0
CN905		
1	2.6	2.6
2	0	0
3	2.8	2.8
4	0	0
5	3.3	3.3
6	0	0
7	2.1	2.1
8	0	0
9	2.4	2.5
CN2001		
1	0	0
2	0	0
3	0	0
4	0	0
5	2.2	2.5
6	2.2	2.5
CN2002		
1	0	0
2	0	0
CN3001		
1	2.5	2.5
2	12.1	12.2
3	5.0	5.0
4	0	0
5	6.7	6.7
6	0	0
7	0	0
8	12.1	12.1
9	2.7	2.7
10	2.5	2.5
11	1.3	1.4
12	2.6	2.6
CN3901		
1	0	0
2	4.9	4.9
3	0	0
4	4.9	4.9
5	2.9	3.0
6	0	0
CN6701		
1	0	0
2	-	-
3	-	-
4	4.8	4.8
5	0	0
6	0	0
7	4.9	4.9
8	0	0
9	0	0
10	0	0
CN7002		
1	4.9	4.9
2	4.9	4.9
3	0	0
4	4.9	4.9

<3D TBC(2M)>

MODE PIN NO.	REC	PLAY
IC1401		
1	0.2	0
2	0	0
3	3.3	0
4	3.3	3.3
5	0	2.4
6	0	0
7	-	2.4
8	0.7	0.7
9	0	0
10	0	0
11	3.7	3.7
12	4.7	4.6
13	0	0
14	2.4	2.5
15	2.3	2.3
16	3.2	3.2
17	0.8	0.8
18	0	0
19	0.4	0.4
20	0.9	1.0
21	1.0	1.0
22	3.3	3.3
23	2.1	2.1
24	1.4	1.5
25	2.6	2.6
26	0.5	0.5
27	2.6	2.6
28	0.5	0.5
29	1.5	1.5
30	0	0
31	1.6	1.6
32	3.3	3.3
33	1.6	1.6
34	0	0
35	0	0
36	0.5	0.5
37	3.3	3.3
38	1.9	2.0
39	1.2	1.2
40	1.2	1.2
41	3.3	3.3
42	2.5	2.5
43	0	0
44	3.3	3.3
45	3.3	3.3
46	2.5	2.5
47	0	0
48	0	0
49	0	0
50	0	0
51	0	0
52	0	0
53	0	0
54	0	0
55	3.3	3.3
56	0	0
57	0	0
58	0	0
59	0	0
60	3.3	3.3
61	3.3	3.3
62	1.6	1.6
63	3.3	3.3
64	0	0
65	0	0
66	0	0
67	0	0
68	0	0
69	0	3.3
70	3.3	3.3
71	0	0
72	0	0
73	0	0
74	0	0
75	0	0
76	0	0
77	2.5	2.5
78	0	0
79	0	0
80	0	0
CN1401		
1	2.6	2.6
2	0	0
3	2.4	2.5
4	5.0	5.0
5	2.1	2.1
6	0.3	4.3
7	3.3	3.3
8	0	0
9	2.8	2.9
10	0	0
11	4.7	4.6
12	0	4.6
13	0	0
14	0.7	0.7

<TERMINAL>

MODE PIN NO.	REC	PLAY
IC501	-	-
IC502		
1	2.0	2
2	0.3	4.4
3	3.4	3.4
4	3.4	3.4
5	5.0	5.0
6	2.2	2.2
7	2.0	2.0
8	5.0	5.0
9	1.4	1.4
10	2.9	2.9
11	2.9	2.9
12	2.9	2.8
13	0	0
14	2.8	2.9
15	2.8	2.9
16	1.9	2.0
17	2.0	2.0
18	1.9	2.0
IC901	-	-
CN911		
1	4.6	4.6
2	4.6	4.6
3	0.3	4.3
4	0	0
5	2.5	2.3
6	0	0
7	3.6	2.4
8	0	0
9	2.8	2.8
10	5.0	5.0
CN912		
1	2.7	2.7
2	0	0
3	0	0
4	2.4	2.1
5	1.3	2.3
6	4.9	4.9
7	0	0
8	0	0
9	2.3	2.3
10	0	0
11	0	0
12	2.3	2.3
CN913		
1	4.7	4.7
2	0	0
3	0	0
4	0	0
5	0	0
6	0	0
7	0	0
8	0	0
9	0	0
10	0	0
11	0	0
CN914		
1	0	0
2	4.9	4.9
3	0	0
4	0	0
5	0	0
6	0	0
7	0	0
8	0	0
9	0	0
10	0	0
11	0	0
CN915		
1	2.6	2.6
2	0	0
3	2.8	2.8
4	0	0
5	3.3	3.3
6	0	0
7	2.1	2.1
8	0	0
9	2.4	2.5
CN916	-	-

<DEMOD>

MODE PIN NO.	REC	PLAY
IC6701		
1	4.3	4.3
2	1.5	1.5
3	1.5	0
4	0	0
5	2.0	2
6	1.9	1.9
7	0.2	0.2
8	0	0
9	0	0
10	3.6	3.6
11	3.6	4.5
12	4.5	4.5
13	4.5	2.2
14	2.2	2.2
15	2.1	2.2
16	0	0
17	0.3	0.3
18	0.3	0.3
19	4.5	4.5
20	0	0
21	0.3	0.3
22	4.7	4.7
23	0	0
24	0	0
25	0	0
26	0	0
27	0	0
28	0	0
29	0	0
30	2.4	2.4
31	2.4	2.4
32	0	0
33	4.7	4.7
34	3.8	3.8
35	0	0
36	2.4	2.4
37	0	0
38	0	0
39	0	0
40	0	0
41	0	0
42	2.5	2.5
43	2.4	2.4
44	0	0
45	0	0
46	4.6	4.6
47	4.6	4.6
48	0	0
49	0	0
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4.20 WAVEFORMS

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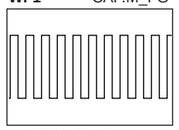
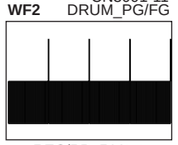
WF1 CN3001-1 CAP.M_FG



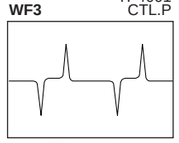
REC/PB 4.9 Vp-p
0.1 V/0.5 msec/DIV

WF2 CN3001-11 DRUM_PG/FG



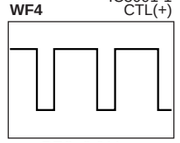
REC/PB 5 Vp-p
0.1 V/5 msec/DIV

WF3 TP4001 CTL.P



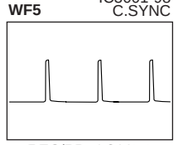
PB 2.0 Vp-p
50 mV/5 msec/DIV

WF4 IC3001-1 CTL(+)



REC 3.6 Vp-p
0.1 V/5 msec/DIV

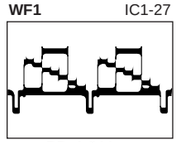
WF5 IC3001-98 C.SYNC



REC/PB 4.2 Vp-p
0.1 V/20 µsec/DIV

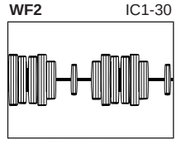
< VIDEO >

WF1 IC1-27



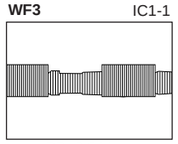
PB 1.8 Vp-p
50 mV/20 µsec/DIV

WF2 IC1-30



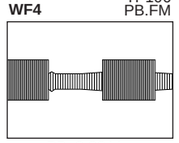
PB 0.68 Vp-p
20 mV/20 µsec/DIV

WF3 IC1-1



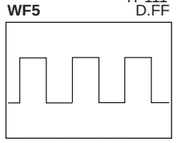
PB 0.3 Vp-p
20 mV/5 msec/DIV

WF4 TP106 PB.FM



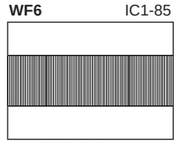
PB 0.36 Vp-p
20 mV/5 msec/DIV

WF5 TP111 D.FF



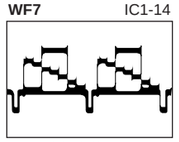
REC/PB 4.4 Vp-p
0.1 V/10 msec/DIV

WF6 IC1-85



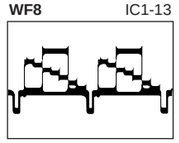
REC 2.0 Vp-p
0.1 V/1 msec/DIV

WF7 IC1-14



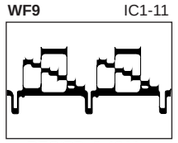
PB 0.42 Vp-p
20 mV/20 µsec/DIV

WF8 IC1-13



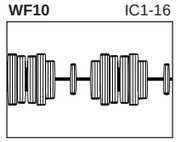
REC/PB 0.42 Vp-p
20 mV/20 µsec/DIV

WF9 IC1-11



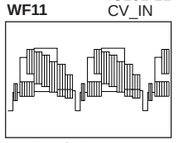
REC/PB 0.42 Vp-p
20 mV/20 µsec/DIV

WF10 IC1-16



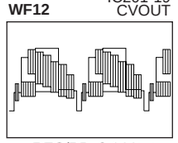
REC 0.68 Vp-p
20 mV/20 µsec/DIV

WF11 IC201-21 CV_IN



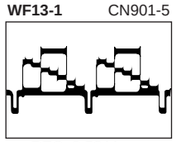
REC/PB 2.1 Vp-p
50 mV/20 µsec/DIV

WF12 IC201-19 CVOUT



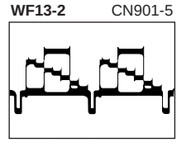
REC/PB 2.1 Vp-p
50 mV/20 µsec/DIV

WF13-1 CN901-5



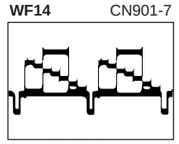
REC 0.52 Vp-p
20 mV/20 µsec/DIV

WF13-2 CN901-5



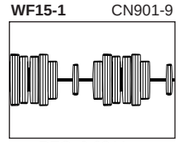
PB 0.42 Vp-p
20 mV/20 µsec/DIV

WF14 CN901-7



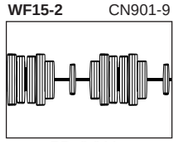
PB 0.42 Vp-p
20 mV/20 µsec/DIV

WF15-1 CN901-9



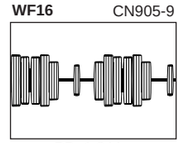
REC 0.68 Vp-p
20 mV/20 µsec/DIV

WF15-2 CN901-9



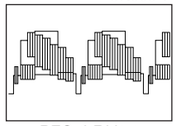
PB 2.6 Vp-p
50 mV/20 µsec/DIV

WF16 CN905-9



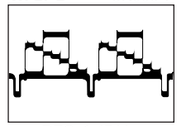
PB 1.3 Vp-p
50 mV/20 µsec/DIV

WF17-1 CN905-7



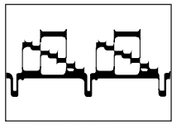
REC 1.7 Vp-p
50 mV/20 µsec/DIV

WF17-2 CN905-7



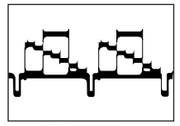
REC 1.45 Vp-p
50 mV/20 µsec/DIV

WF18-1 CN905-5



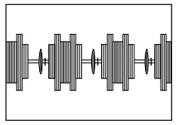
REC 0.6 Vp-p
20 mV/20 µsec/DIV

WF18-2 CN905-5



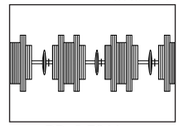
PB 0.64 Vp-p
20 mV/20 µsec/DIV

WF19-1 CN905-3



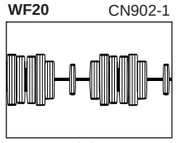
REC 0.44 Vp-p
20 mV/20 µsec/DIV

WF19-2 CN905-3



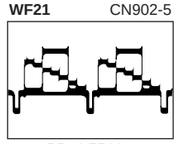
PB 0.72 Vp-p
20 mV/20 µsec/DIV

WF20 CN902-1



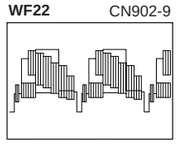
PB 0.6 Vp-p
20 mV/20 µsec/DIV

WF21 CN902-5



PB 1.75 Vp-p
50 mV/20 µsec/DIV

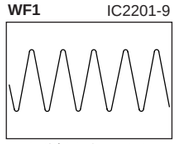
WF22 CN902-9



REC/PB 2.1 Vp-p
50 mV/20 µsec/DIV

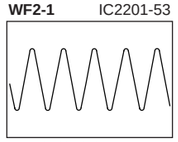
< AUDIO >

WF1 IC2201-9



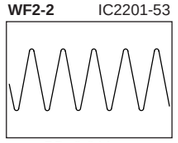
REC/PB 0.4 Vp-p
5 mV/0.5 msec/DIV

WF2-1 IC2201-53



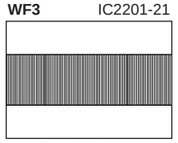
REC 0.36 Vp-p
20 mV/0.5 msec/DIV

WF2-2 IC2201-53



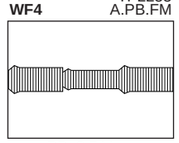
PB 0.6 Vp-p
20 mV/0.5 msec/DIV

WF3 IC2201-21



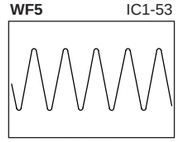
REC 1.0 Vp-p
0.1 V/5 msec/DIV

WF4 TP2253 A.PB.FM



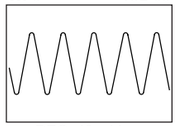
PB 0.5 Vp-p
50 mV/5 msec/DIV

WF5 IC1-53



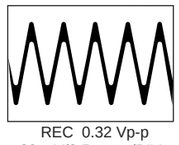
PB 0.3 Vp-p
10 mV/0.5 msec/DIV

WF6 IC1-63



REC 40m Vp-p
2 mV/0.5 msec/DIV

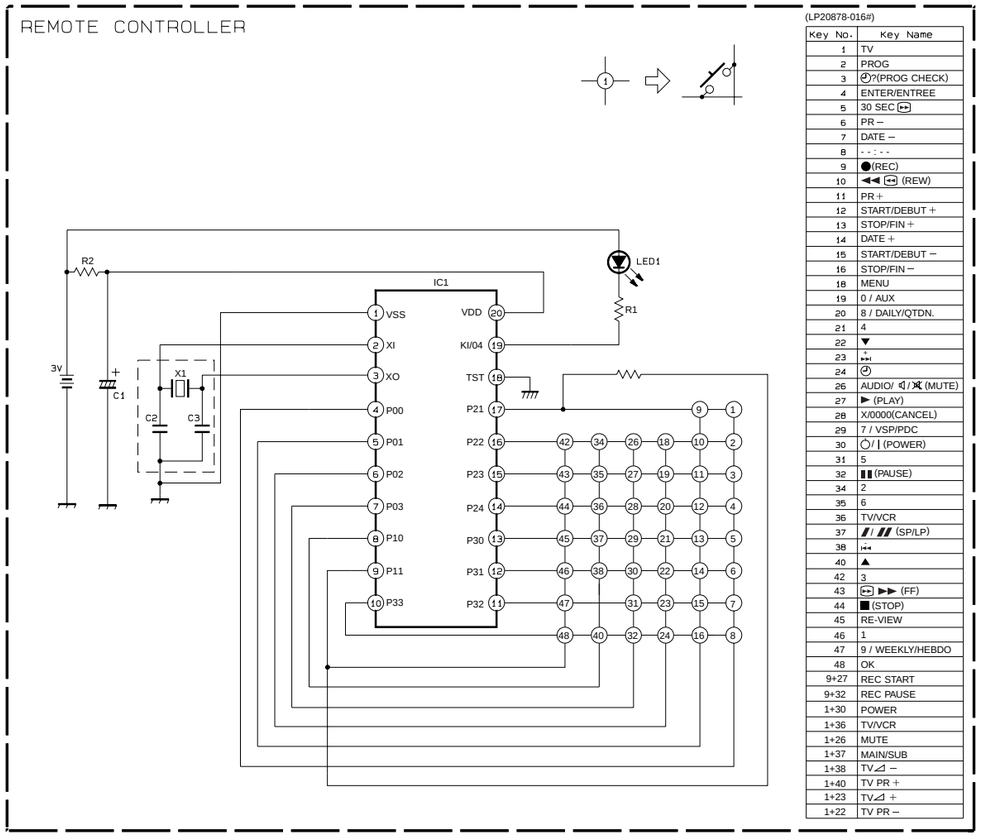
WF7 IC1-99



REC 0.32 Vp-p
20 mV/0.5 msec/DIV

4.21 REMOTE CONTROLLER SCHEMATIC DIAGRAM

NOTES:
1. All parts shown in this schematic are critical for safety.
2. This schematic is only for reference.
   Avoid replacing individual parts.
   Replace the entire unit only.

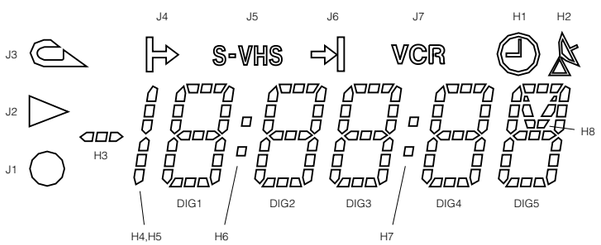


(LP20878-016#)

Key No.	Key Name
1	TV
2	PROG
3	?(PROG CHECK)
4	ENTER/ENTREE
5	30 SEC
6	PR –
7	DATE –
8	- - : - -
9	●(REC)
10	◄◄ (REW)
11	PR +
12	START/DEBUT +
13	STOP/FIN +
14	DATE +
15	START/DEBUT –
16	STOP/FIN –
18	MENU
19	0 / AUX
20	8 / DAILY/QTDN.
21	4
22	▼
23	+ ▸▸I
24	
26	AUDIO/ (MUTE)
27	► (PLAY)
28	X/0000(CANCEL)
29	7 / VSP/PDC
30	/ (POWER)
31	5
32	▮▮ (PAUSE)
34	2
35	6
36	TV/VCR
37	/ (SP/LP)
38	I◂◂
40	▲
42	3
43	►► (FF)
44	■ (STOP)
45	RE-VIEW
46	1
47	9 / WEEKLY/HEBDO
48	OK
9+27	REC START
9+32	REC PAUSE
1+30	POWER
1+36	TV/VCR
1+26	MUTE
1+37	MAIN/SUB
1+38	TV –
1+40	TV PR +
1+23	TV +
1+22	TV PR –

4.22 FDP GRID ASSIGNMENT AND ANODE CONNECTION

GRID ASSIGNMENT



ANODE CONNECTION

No.	CONNECTION
1	CATHODE G, J7, H8
2	CATHODE F, J6, H7
3	CATHODE E, J5, H6
4	CATHODE D, J4, H4, H5
5	CATHODE C, J3, H3
6	CATHODE B, J2, H2
7	CATHODE A, J1, H1
8	COMMON ANODE H1-H8
9	COMMON ANODE J1-J7
10	COMMON ANODE (DIGIT 5)
11	COMMON ANODE (DIGIT 4)
12	COMMON ANODE (DIGIT 3)
13	COMMON ANODE (DIGIT 2)
14	COMMON ANODE (DIGIT 1)

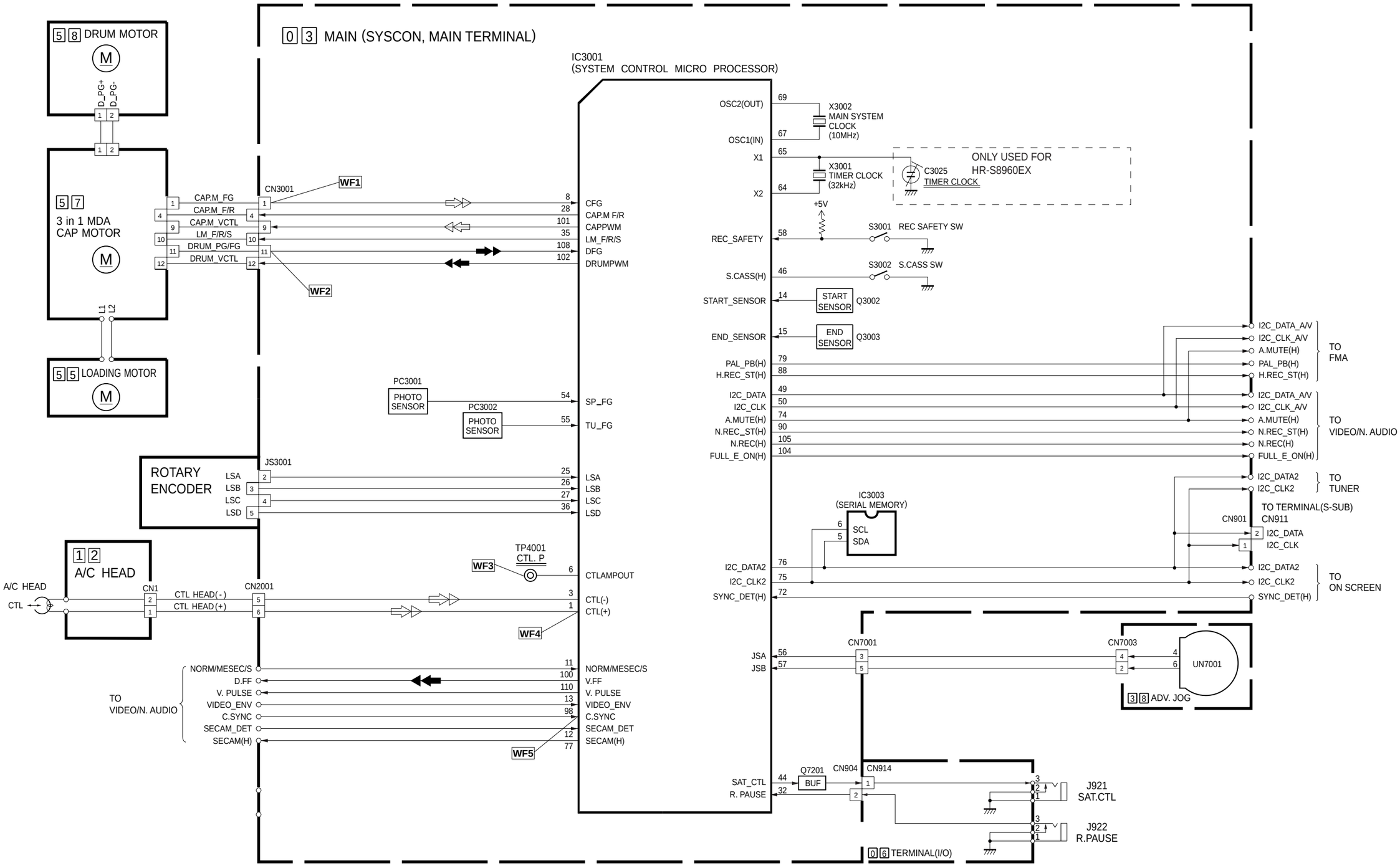
4.23 CPU PIN FUNCTION

<SYSCON IC3001>

PIN NO.	LABEL	IN/OUT	FUNCTION
1	CTL(+)	IN/OUT	CTL(+) SIGNAL
2	SVSS	-	GND
3	CTL(-)	IN/OUT	CTL(-) SIGNAL
4	CTLBIAS	-	CTL BIAS VOLTAGE
5	CTLFB	IN	CTL PULSE FEEDBACK
6	CTLAMPOUT	OUT	CTL PULSE OUTPUT
7	CTLSMTIN	IN	CTL PULSE INPUT
8	CFG	IN	CAPSTAN FG PULSE INPUT
9	SVCC	-	SYSTEM POWER
10	AVCC	-	SYSTEM POWER FOR ANALOG CIRCUIT
11	NORM/MESEC/S	IN	(NORM MODE: L/MESECAM MODE: M/SVHS MODE:H)
12	SECAM_DET	IN	SECAM COLOR DETECT (SECAM:H)
13	VIDEO_ENV	IN	AUTO TRACKING DETECT/INPUT THE AVERAGE OF PLAYBACK VIDEO SIGNAL
14	START_SENSOR	IN	START SENSOR
15	END_SENSOR	IN	END SENSOR
16	KEY1	IN	OPERATION CONTROL SIGNAL
17	PROTECT	IN	DETECTION SIGNAL FOR SW POWER SUPPLY
18	SCR_ID/	IN	SCRAMBLE CONTROL INPUT (SCRAMBLE:H)
19	KEY2	IN	OPERATION CONTROL SIGNAL
20	AFC	IN	TUNING CHECK
21	RF AGC	IN	CHANGES IN ATS+IC OUTPUT AS CAUSED BY CHANGES IN RECEIVER SENSITIVITY WHEN THE SAME CHANNEL IS RECEIVED MORE THAN ONCE ARE INPUT.
22	A.ENV/ND(L)	IN	AUDIO PB FM ENV.INPUT/NON HiFi MODE:L
23	AVSS	-	GND FOR ANALOG CIRCUIT
24	CTL_GAIN	OUT	CONTROL AMP OUT FREQUENCY RESPONSE SWITCHING
25	LSA	IN	MECHANISM MODE DETECT(A)
26	LSB	IN	MECHANISM MODE DETECT(B)
27	LSC	IN	MECHANISM MODE DETECT(C)
28	CAP.M F/R	OUT	CAPSTAN MOTOR FORWARD/REVERSE CONTROL
29	RC	IN	REMOTE CONTROL DATA INPUT
30	DIG1	OUT	LED DRIVE
31	P50_IN	IN	CONTROL SIGNAL FOR TV LINK
32	R.PAUSE	IN	REMOTE PAUSE CONTROL
33	P50_OUT	OUT	CONTROL SIGNAL FOR TV LINK
34	DIG2	OUT	LED DRIVE
35	LM_F/R/S	OUT	LOADING MOTOR DRIVE
36	LSD	OUT	MECHANISM MODE DETECT (D)
37	DIG3	OUT	LED DRIVE
38	SB_GAIN(PWM)	OUT	VOLTAGE CONTROL SIGNAL FOR VIDEO FREQUENCY RESPONSE
39	DIG4	OUT	LED DRIVE
40	POWER_DET	IN	DETECTION SIGNAL FOR POWER DOWN OF AC POWER SUPPLY
41	P.CTL(H)	OUT	CONTROL SIGNAL FOR SWITCHING POWER SUPPLY
42	DIG5	OUT	LED DRIVE
43	VSS	-	GND
44	SAT_CTL	OUT	CONTROL SIGNAL FOR SATELLITE RECEIVER
45	VCC	-	SYSTEM POWER
46	S.CASS(H)	IN	DETECTION SIGNAL FOR SVHS CASSETTE (SVHS:H)
47	OSD_CS	OUT	CHIP SELECT FOR THE ON-SCREEN IC
48	MESECAM(H)/AGC_CTL	OUT	MESECAM: H/AGC CONTROL INPUT
49	I2C_DATA	IN/OUT	SERIAL DATA TRANSFER OUTPUT FOR THE VIDEO/AUDIO IC
50	I2C_CLK	OUT	SERIAL DATA TRANSFER CLOCK FOR THE VIDEO/AUDIO IC
51	DIG6	OUT	LED DRIVE
52	S.DATA_FRSYS	OUT	SERIAL DATA TRANSFER OUTPUT FROM THE FDP DRIVER TO THE ON-SCREEN IC
53	S.CLK	OUT	SERIAL DATA TRANSMISSION CLOCK FROM THE FDP DRIVER TO THE ON-SCREEN IC
54	SP_FG	IN	DETECTION SIGNAL FOR SUPPLY REEL ROTATION/TAPE REMAIN
55	TU_FG	IN	DETECTION SIGNAL FOR TAKE-UP REEL ROTATION/TAPE REMAIN
56	JSA	IN	INPUT FOR THE JOG SHUTTLE

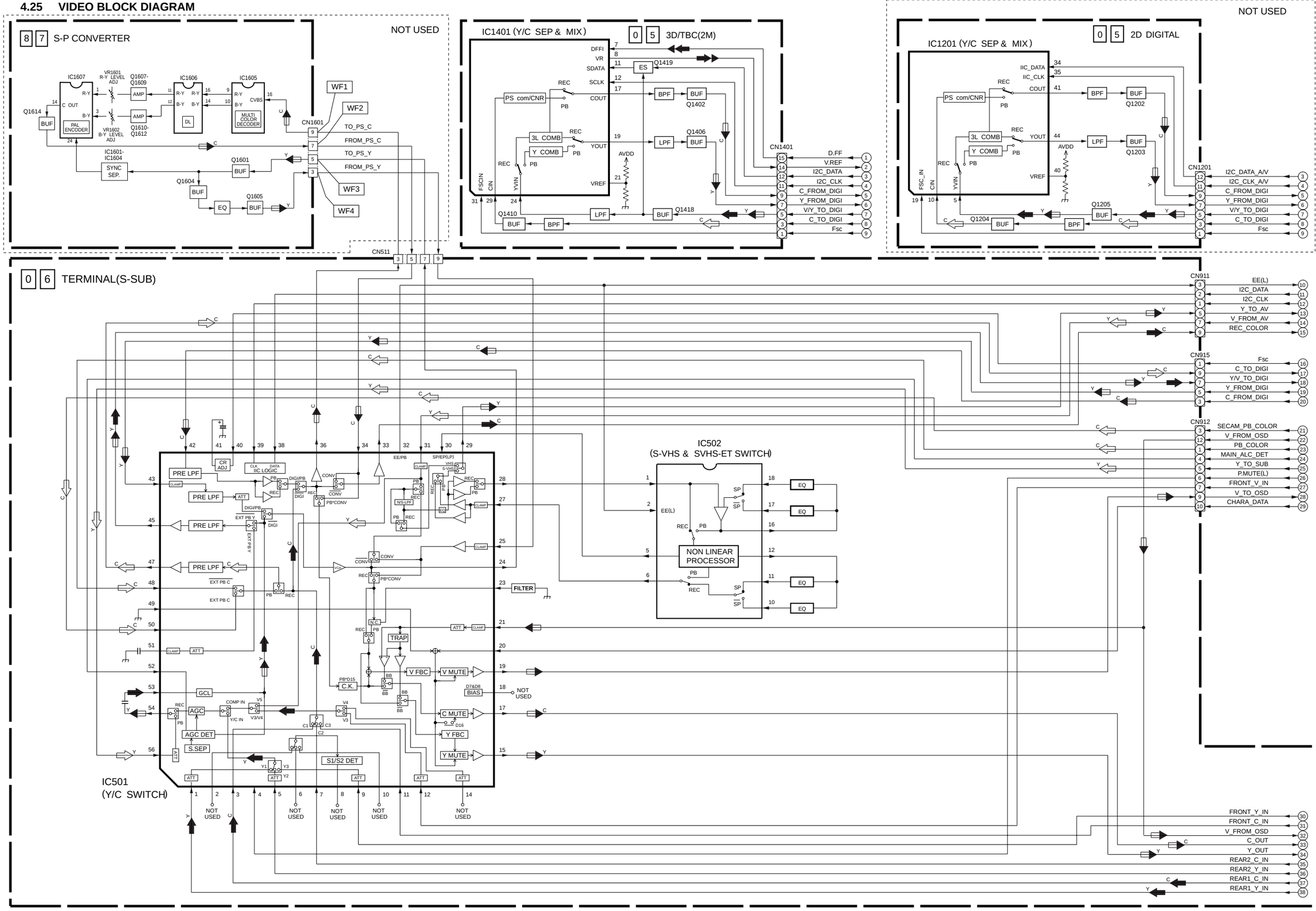
PIN NO.	LABEL	IN/OUT	FUNCTION
57	JSB	IN	INPUT FOR THE JOG SHUTTLE
58	REC_SAFETY	IN	REC SAFETY SWITCH DETECT (SW ON:L)
59	SW1	OUT	TUNER SYSTEM MODE:H
60	SW2	OUT	TUNER SYSTEM MODE:L
61	DIG7	OUT	LED DRIVE
62	FWE	OUT	FLASH WRITE ENABLE
63	NMI(L)	-	CONNECT TO GND
64	X2	-	TIMER CLOCK (32.768KHz)
65	X1	-	TIMER CLOCK (32.768KHz)
66	RES	-	RESET TERMINAL (RESET ON:L)
67	OSC1(IN)	-	MAIN SYSTEM CLOCK(10MHz)
68	VSS	-	GND
69	OSC2(OUT)	-	MAIN SYSTEM CLOCK(10MHz)
70	VCC/VCL	-	SYSTEM POWER
71	MODE	IN	FWE MODE
72	SYNC DET(H)	IN	DETECTION OF VIDEO SYNC SIGNAL(DETECTED:H)
73	TU_V_MUTE(H)	OUT	TUNER VIDEO CONTROL (MUTE:H)
74	A.MUTE(H)	OUT	AUDIO MUTE CONTROL (MUTE:H)
75	I2C_CLK2	OUT	SERIAL DATA TRANSFER CLOCK FOR MEMORY IC
76	I2C_DATA2	IN/OUT	SERIAL DATA TRANSFER OUTPUT FOR MEMORY IC
77	SECAM(H)	OUT	SECAM MODE:H
78	P.ON_PULSE	OUT	P.ON_PULSE(H)
79	PAL PB(H)	OUT	PAL FM(PB ON:H)
80	V.P.CTL	OUT	V.PULSE CONTROL, V COMPENSATION DURING SPECIAL PLAYBACK
81	VHS(H)	OUT	VHS MODE(H)
82	VCC	-	SYSTEM POWER
83	SLOW_P	OUT	MEMORY TIMING CONTROL IN THE SLOW MODE
84	VSS	-	GND
85	SP_SHORT(H)/FLY.ON(H)	OUT	MODE SELECT/FLYING ERASE ON:H
86	LP_SHORT(H)/FLY.REC(H)	OUT	MODE SELECT/FLY REC START:H
87	SEP(H)	OUT	SEP PB:H
88	H.REC_ST(H)	OUT	HIFI AUDIO SOUND RECORDING START
89	TRICK(H)	OUT	SPECIAL PLAYBACK:H
90	N.REC_ST(H)	OUT	NORMAL AUDIO SOUND RECORDING START
91	Da	OUT	LED DRIVE
92	Db	OUT	LED DRIVE
93	Dc	OUT	LED DRIVE
94	Dd	OUT	LED DRIVE
95	De	OUT	LED DRIVE
96	Df	OUT	LED DRIVE
97	Dg	OUT	LED DRIVE
98	C.SYNC	IN	COMPOSITE SYNC
99	A.FF	OUT	AUDIO FF OUTPUT
100	V.FF	IN	ROTATION DETECTION SIGNAL FOR DRUM MOTOR/TIMING CONTROL SIGNAL FOR REC
101	CAPPWM	OUT	CAPSTAN MOTOR CONTROL
102	DRUMPWM	OUT	DRUM MOTOR CONTROL
103	P.MUTE(L)	OUT	PICTURE MUTE CONTROL(MUTE:L)
104	FULL_E_ON(H)	OUT	FULL ERASE ON:H
105	N.REC(H)	OUT	NORMAL AUDIO REC MODE CONTROL SIGNAL (REC:H)
106	ET_REC(H)	OUT	ET REC MODE:H
107	HI_S_FF_REW	OUT	HIGH SPEED FF/REW CONTROL
108	DFG	IN	DRUM FG PULSE INPUT
109	VCC	-	SYSTEM POWER
110	V.PULSE	OUT	V.PULSE ADDITION TIMING CONTROL
111	VSS	-	GND
112	CTLREF	-	CTL REFERENCE VOLTAGE

4.24 SYSTEM CONTROL BLOCK DIAGRAM

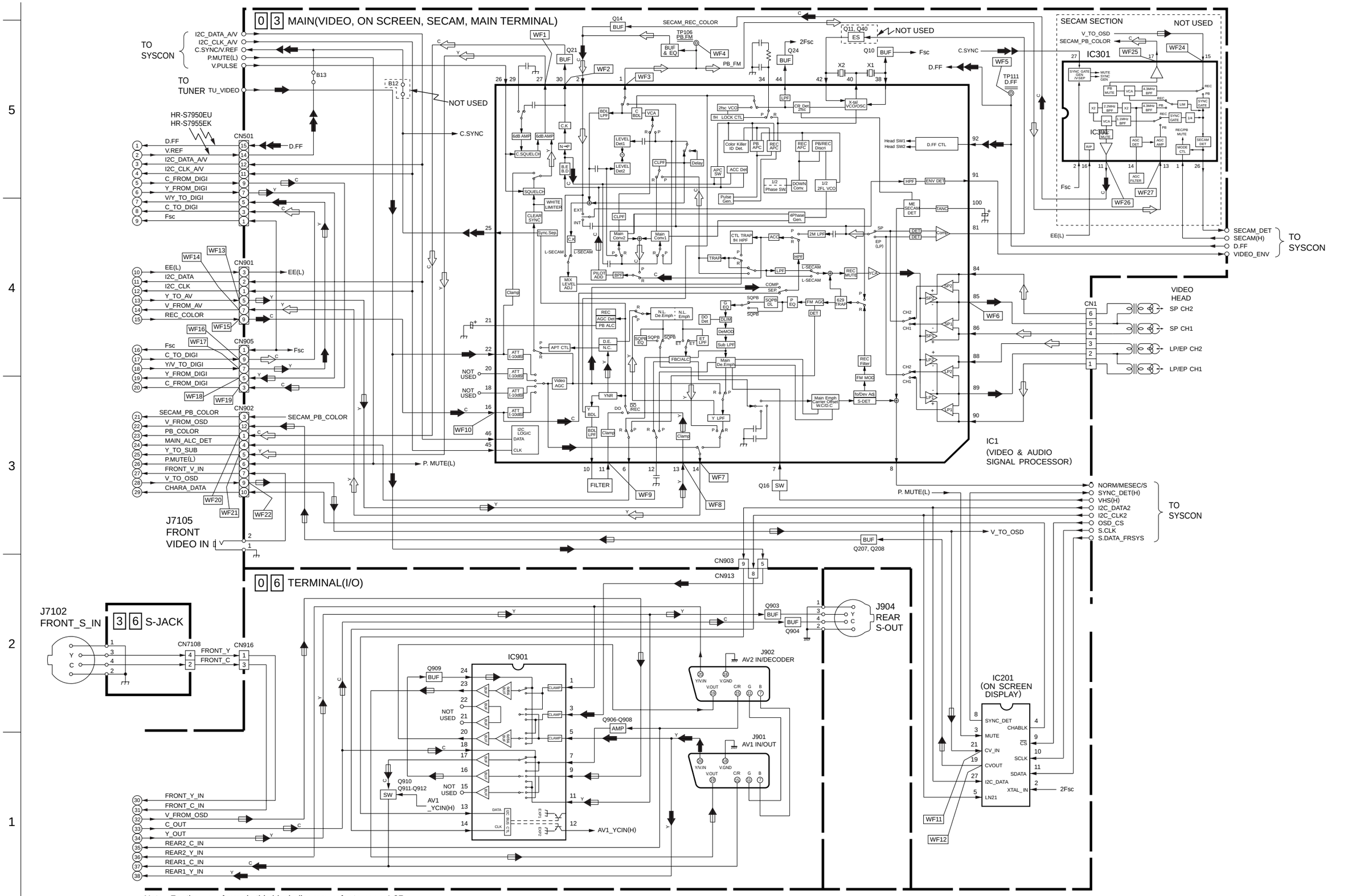


Note : For the waveforms in this block diagram, refer to page 4-37.

4.25 VIDEO BLOCK DIAGRAM

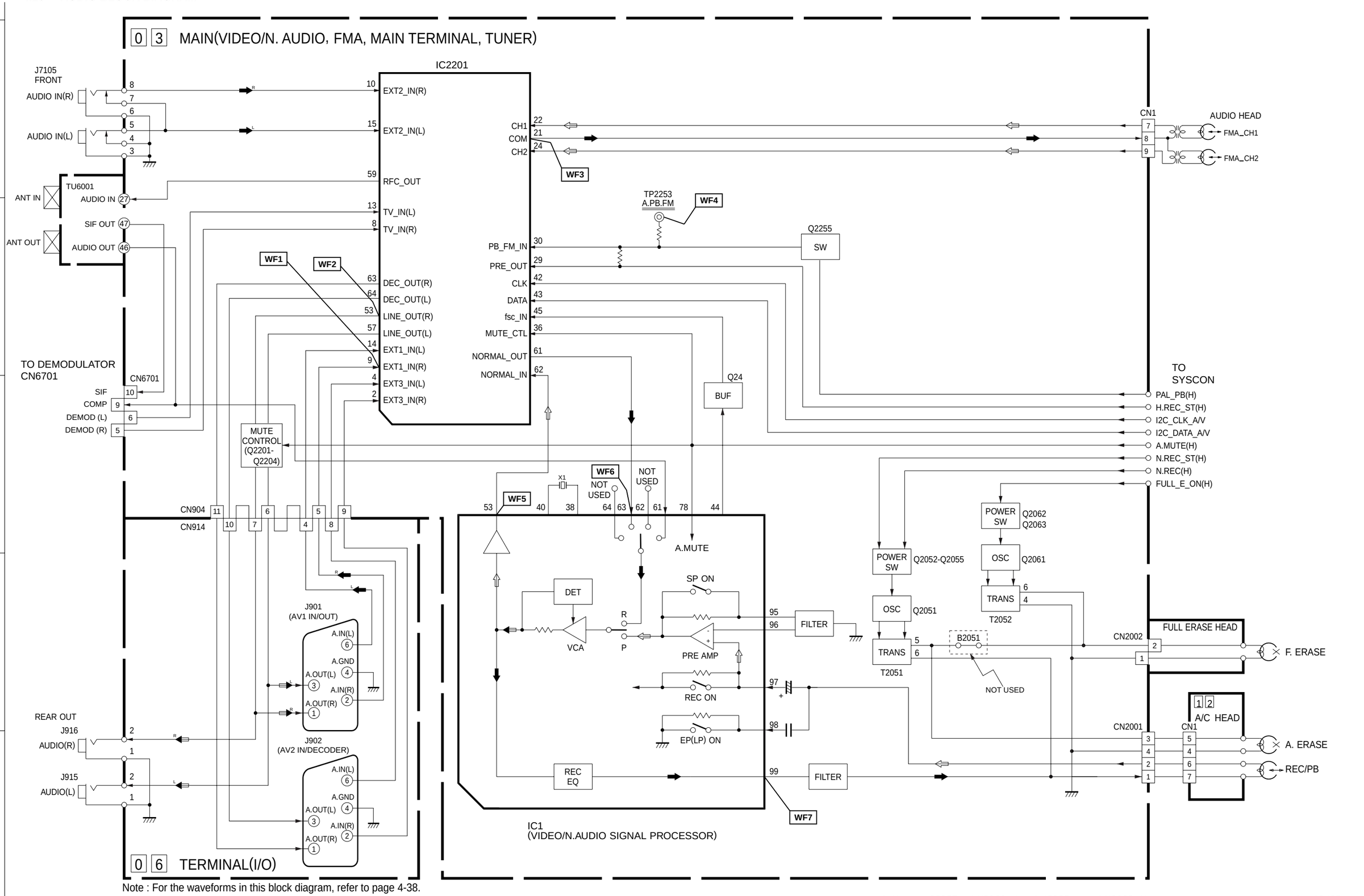


Note : For the waveforms in this block diagram, refer to page 4-37.



Note : For the waveforms in this block diagram, refer to page 4-37.

4.26 AUDIO BLOCK DIAGRAM



Note : For the waveforms in this block diagram, refer to page 4-38.